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NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY

JOSEPH HYDE PRATT, State Geologist

ECONOMIC PAPER No. 29

Report of the Fisheries Convention Held
at New Bern, North Carolina,
December 13, 1911

Compiled by

JOSEPH HYDE PRATT, State Geologist

Together with

A Compendium of the Stenographic Notes of the Meetings Held on the
Two Trips Taken by the Legislative Fish Committee Appointed
by the General Assembly of 1909 and the Legislation
Recommended by this Committee



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LETTER OF TRANSMITTAL

CHAPEL HILL, N. C., July 15, 1912.

To His Excellency, HON. W. W. KITCHIN,

Governor of North Carolina.

SIR:—The Fish Convention which was held at New Bern, December 13, 1911, was a great success, and its proceedings contained so much information of interest to the fishing industry that I have prepared a report on the proceedings of this Convention which I herewith submit for publication as Economic Paper No. 29 of the publications of the North Carolina Geological and Economic Survey. I have included in the manuscript of this Economic Paper a short paper on the fishes of the State, together with the information that was collected by the Legislative Committee appointed by the General Assembly of 1909, which was obtained at a series of meetings held in the tide-water counties during the summer of 1909. The information contained in this report should be of considerable assistance in obtaining the required fish legislation from the General Assembly of 1913.

Yours respectfully,

JOSEPH HYDE PRATT,
State Geologist.

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REPORT OF THE FISHERIES CONVENTION HELD AT NEW BERN, NORTH CAROLINA, DECEMBER, 13, 1911

COMPILED BY JOSEPH HYDE PRATT.

INTRODUCTION.

There was held at New Bern, North Carolina, on Wednesday, December 13, 1911, a convention of very great interest to the eastern part of the State as it related to the fish and oyster industries. This convention was called by the Shellfish Commission, the Fish Commission, and the North Carolina Geological and Economic Survey. An attempt was made to have at the Convention delegates from all counties and sections of counties that are directly interested in the commercial fisheries. With this end in view, the following letter was sent to the mayors of cities, chairmen of county commissioners, and presidents of boards of trade and chambers of commerce in all the counties which contained commercial fisheries:

NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY.

CHAPEL HILL, N. C., November 15, 1911.

DEAR SIR:—The North Carolina Geological and Economic Survey, in co-operation with the North Carolina Fish Commission and the North Carolina Oyster Commission, have called a convention to be held at New Bern, December 13 and 14, to consider ways and means for protecting and perpetuating our fishing industries. We want to have a large number of delegates from all the counties and towns along the coast which have commercial fisheries, so as to have a full and free discussion from all regarding the present condition of these industries and to devise some means of bettering them. It is the object of this convention to consider the matter from the standpoint of the State as a whole, and not from that of any individual county.

The enclosed press circular will give you more specific information in regard to the convention. I am writing to ask that you will appoint ten delegates to represent your ———. In selecting these delegates, please appoint men who are public spirited and interested in the fishing industries, and who you think will attend. I trust that you yourself will also attend.

With best wishes, I am,

Yours very truly,

JOSEPH HYDE PRATT,
State Geologist.

Delegates were in attendance from the following counties: Beaufort, Brunswick, Camden, Carteret, Chowan, Craven, Dare, Edgecombe, Granville, Hertford, Hyde, Jones, New Hanover, Onslow, Orange, Pamlico, Pasquotank, Perquimans, and Washington.

It is believed that these delegates thoroughly represented the various fish interests in their counties and that their deliberations and recommendations will carry weight when the question comes up in the General Assembly of 1913 in regard to fisheries legislation.

One gratifying result of this convention was the organization of an association known as the North Carolina Fisheries Association, whose object is to promote the conservation and perpetuation of the commercial fisheries of the State for the benefit of the people of North Carolina. Considerable interest was aroused in the convention and many of the newspapers of the State took the time and gave the space to call attention to the importance of the convention and the need of some concerted action by the people of the State in connection with the protection of the fisheries and enforcement of laws with this end in view. The following excerpts from two of our daily papers illustrates the interest that the press has taken in the fishing industry:

THE FISHING INDUSTRY.

The *Wilmington Star*, emphasizing the importance of the proposed fish convention, calls attention to some of the conditions which the present system, or lack of system, in dealing with this great resource of the State have brought about:

"The fish, oyster, and game problem of North Carolina demands serious attention and vigorous remedies for their restoration. We hang our heads in shame when Wilmington restaurateurs advertise Norfolk oysters, while the once famous New River oyster has practically disappeared from the market. Now we have only excuses for the large and luscious New River oysters, the premier of all the shellfish from Penobscot Bay to Bull's Bay. The New River oyster has so constantly disappeared and the demand has become so widespread that the whoppers are shipped away for the connoisseurs of Washington, Baltimore, Philadelphia, and New York. Those markets have literally robbed us of the New River oyster, and what we get are mixed with Myrtle Grove Sound, and Stump Sound products.

"However, our Myrtle Grove and Stump Sound oysters would be the equal of New Rivers if the State were to do the right thing by the industry. Fine oysters and fish, from Currituck to Brunswick, could be produced in such abundance as not only to supply North Carolina, but other States. Intelligent legislation must be substituted for selfish interests. When Wilmington buys oysters from Norfolk and soft shell crabs from Baltimore, something is radically wrong. The wrong should be righted by knocking out peanut politics with good hard common sense."

"Good hard common sense" is all that is needed to solve the question and solve it rightly so that instead of robbing our rivers and bays and sounds of their fish and oysters, we should be conserving them, taking plenty and leaving plenty to increase the supply. But like many other matters that have to be solved by our law-making bodies, it is hard to get an application of common sense. Statesmen would apply that remedy, but politicians either predominate or are able in one way and another to defeat the passage of any comprehensive laws on the subject. Some of the people, perhaps the majority

of them, engaged in fishing and oystering think it is their right to pursue their business without any interference whatever from the law. These people have a vote and so hold a club over their representatives. But they should begin to see by this time that they stand to lose more than anybody else by their policy. The remarks of the *Star* are so timely that we quote again:

"The broadest view to be taken of it is the importance of conserving and fostering a State source of wealth and food, a necessity which should be recognized as of equal importance as the conservation of the waterpower and forest wealth of the State. For the same reason that every North Carolinian is concerned in the Appalachian Forest Reserve, which aims to protect wide areas from overflow and conserve the vast waterpower interests of the State, all the people of the State should be concerned in fostering and preserving the State's fish and oyster industry. It is not specially the industry of eastern North Carolina, for when we get away from the individuals actually engaged in the fishing and oystering business for the purpose of making a living and acquiring a competency, the people of eastern North Carolina are no more individually concerned than are the inhabitants of middle and western North Carolina. It is a State resource, and not a local industry, that must be conserved.

"If the people of this State would display half as much interest and zeal in practical and conservative undertakings as they do in politics, there would be constructive progress and material development on a huge scale in North Carolina. If every man were as anxious about fish, oysters and game as he is about the initiative, the referendum and the recall, we would be doing something to the real advantage and development of the State. It is not the theoretical, but the practical questions which should make us bestir ourselves. Of course it is all right to keep abreast of all fundamental public questions of the day, but while we are doing it we should not be guilty of such woeful neglect as to let our fish and oyster interests go to smash, permit our great forests to be destroyed, and fail to protect our immense waterpower and land resources."—*Raleigh Daily Times*.

IMPORTANCE OF FISH AND OYSTER CONSERVATION.

There is an aroused State newspaper action in the matter of fish and oyster conservation in North Carolina. If this same action and force of sentiment will merge, and when the fish convention meets in New Bern next week, fill the hearts and minds of the delegates who meet here, real conservation of these two great natural products of the waters of this State will become effective. And it is time that the selfishness that has prevailed in certain localities, which has prevented legislative action, shall be overthrown, and the entire State reap the benefits from the fish and oysters, which, with intelligent conservation methods, means millions of revenue to this commonwealth.

A few years ago there was almost a total exhaustion of the game birds and wild animals that previously had made this eastern Carolina famous as a great natural hunting ground, for quail, turkeys, robins, doves, and bear, deer, 'possums, squirrels, and other game. Strict game laws, and more important, their positive enforcement, has worked a wonderful change. This year hunters in this section say game has not been so plentiful in years. Conservation has wrought the change, and instead of promiscuous and harmful slaughter of game, there is "good shooting," and game secured that makes hunting a real

sport, one bearing good results, in the perpetuation of this same hunting year after year, instead of a wanton destruction.

Conservation legally, thoroughly applied to North Carolina's fish and oysters, means that these splendid water products will prove a continual and increasing source of wealth to the people. The New Bern convention, with delegates inspired with the real conservation spirit, can work the change. There must be a giving way of personal or locality selfishness, and laws enacted that shall be enforced, that will mean a fish and oyster industry to enrich the State for all time.—*New Bern Daily Journal*.

REPORT OF THE CONVENTION

MORNING SESSION, WEDNESDAY, DECEMBER 13, 1912.

The sessions of the convention were held in the courthouse, and the morning session was called to order at 10:30 o'clock by Joseph Hyde Pratt, State Geologist, who called upon the Reverend J. N. H. Summerill of the Presbyterian Church of New Bern to open the convention with prayer.

At the close of the prayer the chairman introduced Honorable Romulus A. Nunn, who made the address of welcome in behalf of the Mayor of the City of New Bern. Mr. Nunn spoke in part as follows:

ADDRESS OF WELCOME.

Gentlemen of the Fisheries Convention:—I wish to extend to you a most hearty welcome in behalf of the city government as well as the city at large. We are indeed glad to welcome you in our midst this morning, and I trust that your stay with us will be a pleasant one. You are here today to discuss the building up of one of our greatest industries, which apparently has now dwindled to an alarming extent. It has been shown that the people in other States have been able, by suitable laws, to build up their industries from the condition which now exists in North Carolina to a wonderful stage of development. I am told that in the State of Louisiana the oyster industry had gone to almost nothing, and that with the passage of suitable laws the industry has been built up to such an extent that during the past season the oyster catch in that State amounted to a million dollars. The same conditions have existed in Maryland. They undertook to regulate the industry by suitable laws, and last season the oyster catch of Maryland was worth two million dollars. In Virginia a number of years ago the situation was much as it is in North Carolina today, and after the enforcement of suitable laws, last season in the State of Virginia the oyster catch was worth something like two and one-half millions, while in North Carolina the catch was something like twenty-four thousand dollars. Now if we can build up an industry, the catch of which at present amounts to twenty-four thousand dollars, to the two-and-one-half-million-dollar mark, it seems to me that we will have done a great and lasting benefit to North Carolina, and we will benefit not only every oysterman, but the whole people of the State. Gentlemen, I am glad you are here and that we can help you in these discussions. It may be that the fish and oyster business is a local matter, but in other States they have considered that it belonged to the *whole people*, and as such I think it should be considered in North Carolina. Now, if we can do anything here to build up this industry, we will have done a great deal for North Carolina.

The response to the address of welcome was made by Hon. T. J. Markham, of Elizabeth City, who represented Pasquotank County in the General Assembly of 1911, and who is very much interested in the

perpetuation of the fish and oyster industry of North Carolina. He spoke as follows:

RESPONSE.

Mr. Chairman and Gentlemen of the Convention:—I am undertaking to fill the place of a man that I feel absolutely inadequate to fill. When Dr. Pratt asked me, I refused, but you see that he persisted. I want to assure the gentleman from New Bern that in behalf of this convention we appreciate this invitation to be present with you on this occasion, and that we thoroughly appreciate this truly Craven County welcome; and I assure you, sir, that it satisfies our hearts to be with you. This is not a local matter. Gentlemen of this convention, we are all North Carolinians. We all live here, and we want to see her first and foremost in everything. We are proud of the splendid record which she has made in the past ten years in other matters, and we deplore the decrease that has come about in the natural industries of our State. We have made wonderful advancement in agriculture and in the development of the natural resources of the State, but I am sorry to say that because of local conditions and strifes we have allowed this natural industry of North Carolina to dwindle down. This convention is called for the purpose of having the representatives of the eastern section of North Carolina, who are particularly interested in this industry, get together and agree upon one particular thing that will insure concerted action on the part of all. As a matter of fact, we all know that this thing has been worrying the Legislature year after year. No progress has been made up to the present time. We have laws upon our statute books which can not be enforced and are not enforced simply because of the lack of concerted action of the people of the eastern part of the State. I feel safe in saying that the next bill which is presented to the Legislature of North Carolina will be passed. They are not going to hear the petty differences of these local men of the east. Gentlemen, I hope we will go about it with a spirit of unity which will insure the accomplishment of that for which we have striven for a number of years.

OBJECT OF CONVENTION.

The object of the convention was stated by Mr. Pratt, who spoke briefly as follows:

Gentlemen:—As you all know, this convention has been called by the North Carolina Fish Commission, which, however, has jurisdiction over only part of the State; by the North Carolina Oyster Commission, which also has jurisdiction only over a part of the State; and by the North Carolina Geological and Economic Survey, which has jurisdiction over no part of the State. These three Commissions or departments of the State have felt that some definite action should be taken in regard to the great depletion of the fishing industries of the State. When I speak of fishing industries, I include the fin fish, oyster, clam, and, in fact, everything which comes out of the deep waters which is of commercial importance. It seems to me that at this point of our convention it is right and proper that we should organize as a convention by the election of a permanent Chairman. Nominations are now in order.

Mr. George N. Ives, of New Bern:—I nominate Judge A. W. Graham, of Oxford.

Mr. W. S. Privott, of Edenton:—Knowing Judge Graham as I do and the interest he has always shown in the fishing industries of the State, and knowing him to be entirely fair and unbiased, I take great pleasure in seconding the nomination.

Judge Graham was unanimously elected chairman.

In taking the chair Judge Graham spoke as follows:

Gentlemen of Carolina:—I sincerely appreciate this mark of confidence and esteem which you have shown me this morning in calling me to preside over what I deem one of the most important meetings that has been held in North Carolina in several years. It is known that the industries represented by you gentlemen are second to none in our State. If you will take the long coast line which we have, running from Virginia, near Cape Henry, all along the coast down to Southport, near the South Carolina line, it will be found that we have more territory exposed to the Atlantic Ocean than any other one State in the Union. That territory has bordering on the Atlantic Ocean and separating it from the ocean a narrow strip of land which runs from Currituck Sound down to Beaufort, and between that narrow strip of land and the mainland is a vast area of water known as the sounds and bays along the coast, which area of water is second to that contained in but one other State in the Union. It may be that our neighbor on the north, Virginia, has a little more water area, owing to the fact of its proximity to the Chesapeake Bay; but the other States have used the advantages which Providence has placed in their hands in a way which will be conducive to successful results, and we have not. You have met here today for the purpose of trying to formulate some plan by which North Carolina may no longer be a laggard in the race for successful competition as regards her commercial fisheries. I was not intending to make a speech, gentlemen, but simply to give you my idea as to the importance of this convention, and I do hope that every gentleman will feel called upon to express his views in regard to this matter and to let the convention know the conditions which prevail in his community. What we want are laws more liberal, broader in their scope, and easier of enforcement than those we have had heretofore. We need to have a Fisheries Commission with powers sufficient to make such rules or regulations as are needed for the various conditions which exist in different sections of the State, and with sufficient power to see that these rules and regulations are rigidly enforced, so as not only to stop the great depletion of our commercial fisheries, but to begin to bring them back to what they should be. Therefore, I hope that we can do something here today which will appeal to the people of North Carolina as the product of men who are earnest in their work and know what they want, and that we can send such a committee before the next Legislature as will convince them of this. I thank you sincerely for the honor conferred upon me.

Mr. C. S. Vann, of Edenton, moved that the members of the press who are present be asked to act as assistant secretaries to Miss H. M. Berry, stenographer and secretary to the State Geological and Economic Survey. Motion carried.

The chairman then called upon Mr. Pratt to state the object of the Convention.

OBJECT OF THE CONVENTION.

JOSEPH HYDE PRATT, State Geologist:

I can state in a few words the real object of the convention: It is for us to decide upon some definite means to try to build up and perpetuate the fishing industries of North Carolina for the benefit of the people of the State. I think you will all agree with me, and I think you will all admit, that the fishing industry of North Carolina is not in value anywhere near what it ought to be. If we will look over the statistics in regard to the catch of fish and oysters during the past eight or ten or twelve years, you will admit that there has been a constant decrease in value of the fisheries products of the State of North Carolina. In connection with one particular phase of that industry—the oyster industry—I would say that it has gone down to that extreme low figure of less than twenty-five thousand dollars a year. There is bound to be some good cause and reason for such a condition as it exists in North Carolina today, and there is also a way and means by which that condition can be changed, so that we can begin to climb up again until the value of this industry is equal to four or five or six or even seven million dollars per year. Now, who gets the benefit of such an advance in this industry? It is eastern North Carolina mainly, and it is the men who are making a livelihood out of the waters of eastern North Carolina. The people of western and central North Carolina are interested, and they are becoming more interested, in the fishing industry of North Carolina, not because of what they could make out of it, but because the fish are products of the sea and constitute one of the important food products that they want and want badly and are not getting today. Fish have never been so scarce in western and central North Carolina as they are today; and it is up to those who are particularly interested in this industry, namely, the people from eastern North Carolina, to say whether this great industry shall be built up and perpetuated or destroyed, this industry upon which and by which a great many of the people of eastern North Carolina make their living. It is of interest to the rest of us because it means the building up of a certain section of North Carolina, and by building up that section we benefit every other section. I had expected Judge Dillard of Cherokee County to be present at this convention. He is just over an attack of pneumonia and got as far as Raleigh; but, owing to his condition, I presume it is impossible for him to come on to the convention. Why should he come to a fisheries convention—a man living in the extreme western part of the State and with no direct interest in the fisheries industry of the coast? Because he, as an individual citizen of the State of North Carolina, realizes that one of the important industries of the State is being destroyed, and while he may not personally know anything about the methods of fishing or know anything about the conditions that exist in eastern North Carolina, he is man enough and student enough to know there is some remedy for present conditions, and to know that if we can all get together and consider the question from the standpoint of the State at large, there is no reason why a solution of the problem can not be reached. Some of us may have to give up certain things, but if we get together, work together, and think together, we can devise a remedy which is practical and which can be put to work, and which will relieve the situation and begin slowly but surely to build up this important industry. It has been done and is being done in other States, and we can do it just as well in the State of North Carolina.

I have prepared especially for this convention a report called The Fishing Industry of North Carolina, which has been distributed among the delegates to this convention. This gives a number of interesting statistics in regard to the catch of fish and oysters in this and other States, and shows a very marked difference in the condition of these industries in other States and in North Carolina today. I have brought in Louisiana because a good many of the people of the State are against the cultivation of the oyster, saying that we are too far south to successfully cultivate the oyster. This has been done most successfully in Louisiana, as the figures in this report will show.

As you will see in a little table given at the end of this report, the difference between the catch of the oyster industry in Maryland, Virginia, and Louisiana and the catch of North Carolina is almost overwhelming. Now, there is some reason why our oyster industry has gone down. Virginia's industry went down and is back up; Connecticut's industry went down and has regained her former standing; and the same thing has happened in Rhode Island and Louisiana. If these States can accomplish this, then why can not North Carolina? As soon as we do that, we can build up the oyster industry in North Carolina and bring it up to what it should be.

Just a word regarding the other side of the question, and that is the fin fish. We would like to devise some means of protecting the fin fish. I have heard this argument: That we get more fish now than we did ten years ago. If you will turn to table on page 7 of the pamphlet you will find the reason why—it is due to the menhaden fishing, which has increased 204 per cent in quantity. It does not by any means follow that there has been an increase in value. I will admit the tonnage is way up, but the value of your industry is down, and is going lower. We can not solve that problem as individuals. If such were possible, we would have solved it years ago. It remains, then, for us to work together as citizens of a great State to look at it from the standpoint of a State industry and to solve it as such.

Right here I would like to read a clipping recently cut from a Greensboro (N. C.) newspaper in regard to oyster shuckers going from Baltimore to New Orleans:

"There passed through Greensboro yesterday several carloads of men and women enroute from Baltimore to Louisiana to work in the oyster canneries and shucking houses in that State."

Where are our canneries? We have nearly destroyed the oyster industry, and driven the canneries out of the State. They will return, however, if we will only give them a chance.

I want to say a word of appreciation of Mr. W. McDonald Lee, Fish Commissioner of Virginia, for the courtesy and interest he has shown to his neighbor State in giving up his work to come to North Carolina to try to assist us in working out our problem. He has assisted Virginia to work out her problem most successfully. I think we will all admit that Virginia has built up her industry, and it is largely due to the man who has come to assist us in working out ours. I know Mr. Lee can be of great help and assistance to us. He comes to talk about what Virginia has done and what North Carolina can do. It gives me great pleasure to introduce to you Mr. W. McDonald Lee, Commissioner of Fisheries of the State of Virginia.

ADDRESS BY HON. W. MC DONALD LEE.

I want to say to you and Dr. Pratt that I thank you very cordially for the greeting you have extended to me. I had the pleasure of attending the

Elizabeth City Oyster Convention a year ago, and was charmed with the reception that I met with in North Carolina. It is due to the interest then awakened in the work in North Carolina that I am come to New Bern today. I want to commend the custom you have of opening your conventions with a word of prayer to the Giver of all good gifts. I heartily approve of such a custom and believe it should be universally observed. I am come, as has also another distinguished gentleman in this audience (I refer to Dr. H. F. Moore of the United States Bureau of Fisheries) in the hope of giving you some little aid in the solution of the problem which lies before you; and what I say of myself I know I can say of him. Whatever I may say today I feel that you will accept as coming from a disinterested source, and not from any selfish standpoint whatever; and should I, in showing you what Virginia has done, tread upon any toes, or in any way offend the members of the Legislature present, I trust they will pardon me, as no offense is intended. An Irishman upon one occasion, on his death bed, called in his faithful priest, for the purpose of giving him extreme unction. "Pat, you say that you renounce the Devil?" but no word came from Pat. Again the priest said, "Pat, say after me: I renounce the Devil." Still Pat remained silent. The third time the priest said, "Say after me: I renounce the Devil." Pat with his last breath said, "Father, I am in such condition now that I do not care to antagonize anybody." It may be that the legislators, now that they are thinking of going to another session, are in the same condition.

For twenty years through my newspaper and as a private citizen I fought for the rights of the fishermen and oystermen, but in fighting for them I was fighting to put their branch of the industry upon a higher plane than it was in the State of Virginia at that time. I never missed a session of the Virginia Legislature for twenty years. At that time there were, I suppose, two hundred and fifty people going out on the little creek which ran near my home for oysters for a living, and they were not getting a living from it. Today from that little creek alone is marketed two hundred thousand bushels of oysters, so that you see my interests are with my people—their interests and my interests are the same. You have here in this State conditions now that are similar to what they were at that time in Virginia, and you doubtless have papers that are fighting for your interests and for the enactment of laws for regulation, not for persecution; and I would say for the oyster and fish industry, as I would say of all corporations, let us regulate them, not persecute them. In passing I want to compliment your State upon its admirable tax laws for corporations. I find that you are drawing to your State, while we are driving away from our State, a great many industries. In that North Carolina leads, and I congratulate you upon it. In the fish and oyster industry I am proud to say that Virginia takes first place. In 1908 the Federal census put us second to Massachusetts in the fin fish but first in oysters. For the fiscal year ending September 30, 1911, Virginia outstrips all other States of the Union for both fin fish and oysters. To expand upon this I would cite you the figures of the estimate of the catch in Virginia waters for the twelve months ending September 30, 1911. The total value of fin fish caught was about three million dollars. The total value of crabs and clams was one million. The total value of oysters three and one-half millions. The menhaden catch amounted to something like five hundred million pounds, equivalent to one and one-fourth million dollars; fish from pound nets something like one and one-half million dollars; from other nets (three thousand, all told) one-fourth of a million dollars, making a grand total of three mil-

lion dollars for the fin fish. The value of the crabs caught amounted to something like five hundred thousand and of clams five hundred thousand, making a total of one million, and a grand total of seven and one-half millions of dollars for Virginia's raw output of shell and fin fish for the year 1911.

I am here to tell you something about how we arrived at these results. You will pardon any personal reference or references to my own State and any apparent egotism, as whatever I say is more for your information and education, if you may so call it, than to boost myself or my State. After twenty years of fighting before the Legislature, in which the tidewater counties of Virginia had but one-fifth representation, we finally succeeded in getting the Fisheries Commission as it now exists established. Under the old Board of Fisheries the State was annually going into a deficit. It required more money to operate the commission than the taxes received from the fisheries amounted to. The up-country members, having been besieged for twenty years by the members from the tidewater, each wanting to secure some petty local legislation to suit his own county, became disgusted and more disgusted because the tidewater people were not a unit. In fact, did you ever see any twenty members from tidewater who could pull together? There was such an aversion in the Virginia Legislature to all suggestions to revise these laws and put it under a separate head that one of the up-country members, a very sound, square, but hard man, said to them: "Every last one of you are ——— thieves, and if the water left tracks you would all be in the penitentiary." Knowing the man as they did, there was no umbrage taken. He said, "I will let your bill pass provided it is self-supporting." That was a pretty strong argument against our people and made it very hard for those trying to promote the industry, for all these years we had been losing money. But we took it as the best that could be got, and the Board of Fisheries of Virginia was established in 1898. The first year it put a net profit in the State of Virginia's coffers, and has steadily increased in value until today my Commission has turned into the State of Virginia two dollars for every one invested. We got the privilege of using \$45,000 a year for maintaining our Commission. We took in over \$80,000 from the direct revenue, and we have not overtaxed the industry, nor have we increased the taxation. What does it mean? Smith may oppose his tax, and so does Jones; but only as he would oppose any other tax. Today every man pays his tax as willingly as he does his per capita or land tax. The first two years after my Commission took charge, six years ago, the rocks in the State of Virginia were clean. There was a dearth of oysters in Virginia. There was no winter and summer in the oyster industry. They took all sizes of oysters from the little thin paper-shell on, as there was no cull law which was enforced. Every man's hand was against every other man, and every man was his own boss. Dredgers and tongers would pull in their tongs or dredges until the steamer of the Commission passed, and then go at it again. It was a hard thing to instill into a people different principles from what they have been used to for generations, until education and power to enforce regulations could bring about a different attitude. You can not reestablish or reproduce oysters on a barren rock within a season; and you can not eradicate customs in a people that have been bred in them for generations. Every man thought that God had given him the right to take these oysters and fish, and for two years I had the battle of my life. Night after night I had to lay out in a gasoline yawl to catch some depredators. The result of it is that we have put the bad ones out of business and have sold their boats.

Question from Judge Graham:—Do you ever have trouble with Maryland in the enforcement of your laws?

A. I have had considerable trouble with Maryland along the Potomac River, as their dredges would come down on the Virginia side in the night to do their work and then slip back over the line before anything could be done.

In order to remedy our difficulties—and the same thing obtains with you—you not only want the authority to enforce laws, but your Commission will need such authority as will enable it to make rules to suit individual sections. I think that in a case of your kind, as in Virginia, that if you decide to establish this department, that it ought to be given powers almost *ad libitum*. My Legislature has given me such laws as I asked for, except in one or two points, and these laws have been complimented from Maine to Louisiana. They came after twenty years of thought and work and after being in office four years. For four years I served under obsolete laws. To-day I have a magnificent code of laws. Yesterday I saw thirty-four boats with oysters in them, not one of which was less than two and one-half inches, and the rocks just covered. What does it mean? It means that James River alone could supply the markets of Virginia, and the James River represents only one-tenth of the oyster area of our State. You talk about twenty-four thousand dollars worth of sales from your State. I tell you it is disgraceful. The great State of North Carolina, with equally as much water bottom as Virginia or Maryland, making an output like that! At the beginning of our season this year I saw more oysters taken out of one river in two days than your entire State produced in the whole year. I have seen forty thousand dollars worth a day taken out of the James River. Go after your Legislature, gentlemen! But first try to be a unit. Almost anything we ask of our Legislature now, it lets us have. And the people of tidewater Virginia are beginning to realize that it is best to work together.

You have the best waters on the Atlantic coast for fin fish. We often say in Virginia that if the fishing industry in North Carolina were regulated, if they had the cull law, the season law, and were patrolled and enforced like they are in Virginia, that Virginia would almost have to go out of business.

(The question was asked as to the size of the smallest fish allowed to be taken in Virginia. Mr. Lee replied that he could not give that information off-hand, but that it is contained in his reports. He stated that they have these regulations and that they live up to them.)

If I catch up with a man who does not live up to them I make it sufficiently hard for him so that he will not do it again, and the result has been that in the last two years Virginia has had more fish than ever in her history before.

If you will preserve yours and will refrain from catching everything, all the little fish, and everything that comes into the waters, it will not be long before you will be able to build up your industry, and in order to do this it is necessary to have a commission with sufficient powers to make regulations suitable for the individual cases and with unlimited powers of enforcement. I would say here that local statutes are a curse on any statute book. (Applause.) We have no local statutes, except for the seed oysters in the upper James and Potomac. Tell your Legislature to abolish your local laws. Get together! It may be a little hardship on you, and you, and you, but if you will take the matter in your hands and let the Legislature know you mean business and that you are willing to make some sacrifices in order to gain a larger return, your efforts will not be unfruitful of results.

You have probably as much oyster bottom as we have. Maryland has more than we have. But I have always been of the opinion that Virginia was next to Maryland. Yet I presume that you have bottoms that are equal to any. Why, Warren County alone has only 68 votes and puts out more than North Carolina. You have not begun; it is time to start. We are fifteen years ahead of Maryland. Maryland has never paid the expenses of her Commission. Maryland has more water bottoms than Virginia, and Maryland can not do any better because of politics. Gentlemen, I am a Virginian first, and politics and party comes second. When I went into office I told Governor Swanson that I had fifty-two inspectors and twenty-odd captains that were put in under the adverse administration. I said to him, "Do you want me to put those men out?" He says, "Mack, all things being equal, I want you to give it to a Swanson man, if he is suited to the place, but not for one instant would I have you put out a good Montague inspector and put in an indifferent Swanson man." Out of the fifty-two we kept forty-eight. We have in our Commission no political lines. If we are able to make two oysters grow where but one grew before, we feel that we have accomplished a good work. Why, gentlemen, Norfolk has thriven on the trade she gets from North Carolina. I am down here to instruct—I may have to urge—you not to be so prodigate of your industries, but to conserve your natural industries and to make two oysters grow where one grew before, and to beg you to throw back the little fellow. I know I am doing this to the detriment of my own State. But I feel a hearty interest in the welfare of your State, and would urge you to profit by our example. The idea of having oysters shipped from Virginia waters to supply the North Carolina trade! Why, we are not only producing more oysters today than we can market, but we are going to double that in four years time. The argument has been raised that if so many oysters are produced the markets will be flooded and the prices reduced. I had rather sell one hundred barrels of oysters at ten cents a bushel than fifty barrels at fifteen cents.

Accomac County, in the State of Virginia, furnishes more soft crabs than any other locality in the United States. Its clam industry is today worth one-fourth million dollars. Accomac County, by the Federal census, is described as being the wealthiest County in the United States. It has no cities. It says that ———, a town in the midst of the fishing country, is the wealthiest place per capita of any village, town or city in the United States. The fish have produced for this town the greatest per capita wealth of any city in the United States. Virginia today has the greatest fish as well as the greatest oyster output of any State in the United States. I am here to tell you that if you can not do altogether as much as we have done, you may come as second best.

At the close of Mr. Lee's address the following questions were asked by various delegates:

Mr. Geo. N. Ives:—I want to answer for myself the question, Are we not ashamed of ourselves? I have been ashamed for twenty years, but I have never been so rubbed in the mud as this morning. I would like to ask one question. You state that your Commission is self-supporting; that it pays a revenue to the State, and that your fishermen and oystermen are not overtaxed. How do you do it?

A. The tongs are taxed \$2.50 a season from the 15th of September to the first of April. The dredger is taxed so much to the ton and he is restricted to certain waters. We rent our bottoms at the rate of \$1 per acre per annum. Purse fish nets and pounds are taxed \$3.50; fyke and gill nets \$1; and the others run along in that way. We turned over to the State treasury this year \$81,000 from the industry, although we have been pretty hard hit by the Pure Food Laws.

Q. How are your menhaden fishermen taxed?

A. Our menhaden men pay \$100 on the steamer. We have fifty steamers in the State of Virginia. The menhaden fishing industry is all right, if properly regulated. If not regulated, it will ruin you. We have very stringent laws in our State regulating the menhaden fishing, and it is absolutely taboo for them to take any food fish at all on their boats. I can assure you that during the past three seasons every boat has had to buy its food fish. In order to enforce this I have a fine as high as \$1,000 on any menhaden boat on which food fish is found.

Q. How are the tongs taxed for the State's expense?

A. \$2.50.

Q. How are the dredges taxed?

A. So much per ton.

Q. In what areas are they restricted?

A. We had a survey made of our waters a number of years ago, known as the Baylor survey. It surveyed out the natural bottoms and these were so designated on charts in each county. The natural rocks are left in perpetuity to the tongs as public grounds. All outside of that is rented; that is, all outside of the Baylor survey. You may improve on our system of surveying, as Maryland is doing, and survey the planting grounds which can be leased for oyster planting instead of the natural rocks. Having these oyster grounds surveyed, you can lay it off into regular lots as Rhode Island and Maryland are doing. In the James River I found that there were numbers of planters who had a little ground bordering on the natural rocks. From this point of vantage they would creep out and depredate on the public rocks.

Q. How do you regulate the culling of the fish?

A. By the size of the mesh.

Q. How do you regulate their going up the mouths of streams and creeks?

A. Do not allow any river or creek or bay to be restricted more than one-half its width. We do not allow a pound or any stake-nets to be set more than one-fourth distance from each shore.

Q. What are the terms of the oyster ground leases?

A. Twenty years.

Q. What variety of fin fish do you catch mostly?

A. Shad and herring; on the outside, menhaden.

Q. You also have mullet?

A. Very few.

(The mullet fish is one of the greatest enterprises we have in North Carolina.)

Q. What size mesh do you use?

A. Two inch stretches on the bar.

Q. Is there any difference in the mesh of your seines and pound nets? Is there any difference in the size of the mesh of your pound and mesh of hauls and seines in fishing for the same fish?

A. I cannot give you this without the law.

Mr. George N. Ives then gave a talk on the amount of tax paid in North Carolina, stating that it amounts to a tax of 4 cents on the gallon for retailers.

Mr. Nunn:—You spoke about the wonderful increase that has been made since you had a State-wide law. Tell me, do the fishermen and oystermen like the present situation better than the old situation? Would they be willing to go back to local laws?

A. We have from 15,000 to 20,000 people under the law. Of course, a certain proportion of them would like to have no law whatever, but it is considered by practically all that there are more oysters in Virginia and better conditions exist there than we have ever had. We certainly have more oysters than we have had for a quarter of a century. Where there is a lack of complaint you can depend upon it they are pretty well satisfied.

Q. What part of Virginia does your Commission cover?

A. Tidewater Virginia.

Q. Does your law apply in any way to non-resident fishing?

A. Non-residents of the State can not fish or oyster there. When a man gets his license to fish in any county he can fish anywhere.

Q. I understand that the State of Virginia has a law which provides for a man to lease an area. Explain the lease.

A. The leases are granted for 20 years at \$1 per acre per year, and the lessee pays the surveyor for making the first survey.

Q. Do you have any law in the State of Virginia which provides for the protection of the lessee?

A. Yes, we allow for 20 years. He goes out and stakes what he wants, calls the inspector, who posts a notice for sixty days on the court-house door; and then stakes out the amount leased. One man can take up as much as 250 acres.

Q. You can not get an entry or grant in fee simple?

A. No.

Q. Do you have any law which provides for men to go out and take the bottom which has been provided providentially?

A. Provision is made for the protection of the natural oyster rocks as we call them. No man can lease a depleted natural rock.

Judge Graham:—Gentlemen, the Legislature of 1909 appointed a fish committee to make the investigations which were carried out the summer of 1909 and the spring of 1910. This committee consisted of three members from the House and two members from the Senate, and an amendment added to this number the Speaker of the House and the President of the Senate. We incorporated the provision in that bill that the Bureau of Fisheries in Washington should be requested to assign for the assistance of this committee one of their experts so as to assist as much as possible this committee in their investigations and to discuss not only with the committee but with the citizens of the portions of the State visited all phases of the fish and oyster industry. It was my good fortune to be a member of that committee and I esteem it a great good fortune to North Carolina, and especially for that committee, that there was assigned to us a gentleman who seemed to me to have a more thorough knowledge of the fish and oyster industry than any other gentleman I have ever had the pleasure of meeting. I refer to Dr. H. F. Moore, of the United States Bureau of Fisheries at Washington, who will tell you of some of the work he has been connected with.

ADDRESS BY DR. H. F. MOORE.

I want to express my thanks for my own part for the very great privilege that I have felt I had in being able to serve with this committee. I spent all told with those gentlemen, in many cases under rather uncomfortable physical conditions, practically an entire month, and I will say I have never spent a more pleasant month or a more profitable month than that proved to be. I was especially struck with the sincerity of that committee, who seemed to be thoroughly in earnest in their efforts to arrive at the truth with regard to the fishing conditions. I have been in North Carolina a number of times in the last four or five years, having made five or six trips, and always on the same errand—that is, to help to frame some legislation which would tend to check the great depletion which has been on the increase among the commercial fisheries during all of this time. I will admit that you have not always done the things that I would like to have you do; but I will credit you with an honest desire to do the right thing. I will simply say in passing that I am familiar with conditions in practically all the States along the Atlantic coast, and also of some of the Gulf States. In the remarks heretofore made there has been mention made by various persons in discussions of another State, and it seems to me that the history there parallels more or less the conditions through which you are passing at the present time, and it may be of interest to you to show a few years of the progress made there. I refer to the State of Louisiana. I might take up conditions in Massachusetts or Maryland or New Jersey or Virginia; but it seems to me that Louisiana will serve as a better illustration for North Carolina. My first acquaintance with Louisiana was in 1898, when a cry went up from some of those in authority to the

Government in Washington, asking that some one be sent down to look into their fisheries, principally the oyster. We made a rough survey of one part of the State, and then I made an examination of the entire fish producing part of the coast. I found that they were in very largely the same condition that you are now, or were a year or two ago before the present fisheries law was passed. The entire subject was turned over to local control. The Legislature passed some laws in a perfunctory way and turned over everything to the parishes. In Louisiana the subdivisions are called parishes instead of counties. In each parish was a sheriff who was charged with the duty of enforcing the law, which, in the case of the fisheries, usually meant non-enforcement of the law. The officer who was in charge of the duty of enforcing the fishery laws was sometimes fifty or sixty miles from the fisheries. The consequence was they were allowed to go by default. The case exemplifies what I wish to say, particularly with respect to the oyster fishery, because that has been the important fish of North Carolina. There was a law on the statute books which imposed culling. This was never enforced. No respect whatever was paid to it. The tongs would go out to the natural beds and tong up everything—all kinds and sizes—and carry them into the places, oyster houses, steam houses, or shucking houses, the same houses taking everything as it came. The shucking houses simply culled out the oysters on the spot and the little spat was thrown on the shell heap, which eventually was carried off to fill up waste places or make roads. The consequence was that these oyster beds were either depleted or rapidly becoming depleted. There was no provision for the planting of oysters, and the natural rocks becoming depleted meant that the industry was down at a low ebb. If a man desired to secure a certain area or bottom on which to deposit oysters and allow them to fasten and grow, he simply went out to some remote spot on the marshes and protected them with his good right arm and shot gun. The State afforded him no protection whatever. The Bureau of Fisheries made out a report regarding the conditions, with such recommendations as it was believed would correct these conditions, and the report was printed and turned over to the State authorities. Of course, under the conditions limiting the activities of the Federal Government, we could do no more than this. I lost sight of the matter for four years, and then found that a vigorous fight was going on in the State in behalf of an improved oyster law. The local people believed that they had a God-given right to all the products of the waters adjacent to their territory. If they had any laws at all they wanted to say what these laws were to be. After considerable work and fighting, Louisiana succeeded in passing her oyster laws. Provision was made to cull out all oysters under three inches in diameter and for them to be returned to the beds from which they were taken. Previous to this there was no culling whatever, and the oysters were taken as obtained from the beds direct to market. What was more important still, provisions were made for the leasing of oyster bottoms and for the protection of the lessees. It became possible for any person or corporation of men to lease not to exceed one thousand acres in any or all portions of the State. Under the provisions of this act three or four leases were taken up, but at the present time there is no one of these leases equal in extent to the number of acres which were allowed to be taken up. The one thousand acres was found to be more than any man cared to handle. Those who held the leases have surrendered part of their bottoms. The average size of the holdings now is about thirty-five or thirty-seven acres. The great majority of the holdings are twenty acres or less.

Now, what does this mean? It means that the man with small capital who had been getting his livelihood heretofore by fishing on the reefs had found it more to his advantage to lease and plant oysters in these small patches. Most of the holdings at the present time are by persons of this character, so that there is no question of a monopoly down there; and I believe there is no one who could acquire a monopoly even if the maximum area was increased to several times the thousand acres. In the sixteen years preceding the enactment of this law there was leased all told about fifteen or sixteen acres.

The income which the State derived from this was practically nothing. I do not believe that to take the State as a whole the income from the planted beds was more than one hundred dollars. Now there are planted something like twenty-three thousand acres, and the State is deriving a revenue from these areas of about twenty-three thousand dollars. In addition to this, there was a revenue from the natural rocks.

Now, what does this mean? It means that the State, which was getting practically nothing before the passage of the act, at the end of four years was reaping a gross income of about forty thousand dollars, a considerable portion of which was used to protect the natural beds and to protect the lessees' territory. Now that is the State's viewpoint. Let us see what it did for the industry. At the end of four years and after the imposition of the various taxes which it stipulated, the total production of the State was between one hundred and fifty thousand dollars and one hundred and sixty thousand dollars; that is to say, the industry had increased fifty per cent, and to the oystermen the increase was more than fifty-two per cent. That law was passed in 1902 or 1903. Eight years have passed. At the present time the oyster industry of Louisiana produces over three million bushels a year, sixty-three times what it was nine years ago when this law went into effect. You have just had read a clipping from the newspaper which told of the shuckers going from Baltimore, which used to be the center of the oyster industry on the Atlantic coast, in car load lots, to Louisiana to work in the canneries and shucking houses there. Does this look as if this tax had ruined the industry? They have increased the quantity and quality of their oysters to a great extent. Their reefs are in better condition, and they have established a more permanent industry through the planting. In other words, fifty per cent of the oysters are growing on bottoms which produced nothing and the bottoms which were formerly productive are now producing fifty per cent more than when this oyster law was passed.

At the close of Dr. Moore's address there was an open discussion.

Q. How is the barren territory planted?

A. In two ways. In most cases by seed oysters which are taken from the public reefs and which the law provides may be taken under certain conditions and under special permits from the Oyster Commission. The Oyster Commission has absolutely in its own hands the regulation of the seed industry of the State, so far as it pertains to the public grounds.

Q. Do you know of any State in the Union in which they have made a success of their fish and oyster industries except where it has been controlled by a Commission? Is any State making a success of the business where it is left entirely to local laws?

A. There is not a State where local legislation and control has been made a success. There are some States which have not been successful under centralized control, but it is due to some difficulty in the law or in the administration of it. There are places in the United States where there is a division of control, and this always results in disaster, so far as the industry is concerned. For instance, take the waters of Lake Erie. That body of water, which has very extensive fisheries, is bounded by four States of the United States and the Dominion of Canada, which makes five distinct jurisdictions, all considering their local needs. The consequence is the regulation of the fisheries there is a failure.

Chairman.—Mr. Pratt will make an announcement and the discussion of Dr. Moore's paper will be continued after dinner.

Mr. Pratt then read a letter of regret from Governor Kitchin:

STATE OF NORTH CAROLINA,

EXECUTIVE DEPARTMENT.

RALEIGH, December 12, 1911.

To the Fisheries Convention Assembled at New Bern, N. C.

GENTLEMEN:—I regret exceedingly that official duties prevent my being with you during your deliberations regarding the fishing industry of North Carolina, which means so much to the eastern part of our State. I am heartily in sympathy with the work that is being carried on towards the building up and perpetuating this industry for the benefit of the people of North Carolina.

I trust that through your deliberations you will be able to work out a solution of this perplexing problem.

Wishing you the best of success, I am,

W. W. KITCHIN,
Governor.

Announcement was made that the official photographer would take a picture of the delegates at the close of the morning session; also that the City of New Bern would entertain the delegates with a smoker at the Elks Club in the evening.

AFTERNOON SESSION.

WEDNESDAY, DECEMBER 13, 1912.

Meeting called to order at 2:30 o'clock, Judge Graham in the chair.

Judge Graham.—Dr. Moore this morning confined his remarks almost entirely to the view of the oysterman. I have asked him to prolong his remarks and give his ideas as to what we could do in order to decrease the depletion of the fin fish.

DR. MOORE.

What I said this morning about the oyster fisheries I said with the idea of applying it to the fisheries as a whole. The principles underlying the statements were applicable to all the fisheries; that is, for a centralized or general

control as opposed to a local one. You have exactly the same conditions in the fisheries for the so-called fin fishes as you have for oysters. The importance of centralization of control and general jurisdiction of some central body is more important for the reason that the oyster stays "put," so to speak, and to that extent, of course, he is a local inhabitant. With the fin fishes the case is a different one. They move about. Some are inherently migratory. They have regular natural movements from the sea up into the inland waters, or fresh water, and these movements are generally dependent upon the necessity for seeking these waters for purposes of reproduction and spawning. Now you can readily see that it will be quite impossible for local legislation to have any material effect on the regulation of such a fish as the shad. The shad, as you know, during the winter months live somewhere off the coast within reach. In the spring at the approach of the spawning season as the waters warm up they run into the inlets, up the sounds and thence into the fresh waters of the rivers, where they spawn. A local greed or desire for immediate local profit will make it quite possible to destroy that fish or reduce it to a very low ebb. If, for instance, a man in the upper waters were to take all the fish that came up and approached the spawning grounds, very soon there would be no fish to go out to sea and come back next year. Similarly, the man at the inlet could ruin or practically ruin the shad fisheries. Now you will see that the people up the stream have the same rights as those below, but in the case of a local control they have no show whatever; they are without a voice in the method of protecting the fisheries. Now, I think you will all admit that it is improper to put the salvation of that fish in the hands of some one who has purely local interests. The men on the spawning grounds have an equally valid objection to catching them all before they go up, and the men at the inlets have the right to object to all the shad being caught up and none allowed to go back to sea. Now, you will say that it is always more or less theoretical, that there are always some fish getting up. Of course some are getting up because it would be absolutely impossible to destroy or catch all the fish that come up; but they can be caught up to such an extent that they are no longer a commercial fish. Such a point had been reached by the shad fisheries in North Carolina some years ago, and this condition of affairs was particularly illustrated when the hatchery was established at Edenton. This hatchery was established primarily for the propagation of shad, I believe, about 1899, and went into operation about 1900, which was the year in which it carried on operations on a practical scale. During that year something like ten million eggs were hatched, which was a very low number. The trouble was that the spawn could not be secured from the sound for hatching. The following year something like fifty million were taken, and the next year seventy-five million, and that was the maximum. At that time the watercourses leading up to the spawning ground at Edenton were very much crowded with fishing apparatus of all kinds. Gear of all kinds was set across the sounds and inlets without let or hindrance. There began a decline, until in 1905 the take of eggs fell from seventy-five million to a little over six million. There was no let up, no cessation in the efforts to take eggs, but the eggs were not found; the fish were all taken before they could get to the spawning grounds. About that time the people began to appreciate the difficulties, and I think it was in 1905 that they passed the Vann bill, opening up a certain area of the sounds where no fishing was permitted, so as to allow a free channel for the

fish up the center of the sounds. In the following year the take of eggs at Edenton rose from six million to twenty-five million. The next year it dropped off a little to twenty-three million; but the next year there was a very great jump up to fifty million, and the next year there was about sixty-nine million eggs. The last year we got back to practically the original seventy-five million. That showed that the fish had been caught up by the nets to such an extent that they were not allowed to get up into the waters to spawn. This shows very plainly the effects of local or central control over these waters. After the Fish Commission was established and there was some kind of control exercised over these waters there began to be an increase in the number of shad eggs taken out of them, showing that more fish were allowed to come up to spawn. So that it can be readily seen that the only way to make control effective is to have a commission with sufficient power to control all the sections of the State. The case cited is just one. We have innumerable others. You can not injure the fisheries in one region without injuring them in another. It is inevitable that the extermination of the fish in one region is going to have a very grave effect somewhere else. That is the very serious difficulty of local administration in matters of that kind.

Now, there is one thing to which I wish to call your attention in regard to your fisheries. It is quite true that the fisheries of North Carolina are more valuable today than they were in 1880, when the first statistics were collected. Their value is three or four times what it was then; but when you come to analyze the statistics you find this important fact, that your best fisheries of 1880 are not today producing anything like the quantity of fish that they did at that time. Take, for instance, the shad; there was something like three or four million pounds caught at that time per year. The latest reports of 1908 show that approximately the same quantity was caught in that year; but the amount of apparatus had probably quadrupled. There are today four times as much apparatus. If you will compare the middle records of, say, 1898 or 1899, there was something like eight or nine million pounds of shad taken per year, and today there are only three or four million, while the amount of apparatus used is increasing enormously. In other words, you are keeping up your fisheries by catching all kinds of fish, even those which had no value before. In the 80's and 90's those fish were thrown away. Now they are sent to market. The shad which in 1880 constituted about one-third of the value of the whole fisheries of North Carolina, at the present day do not constitute more than one-fifth in value; and, whereas it constituted about one-sixth of the quantity taken in 1880, today it is about one-thirtieth. That is, out of every thirty pounds of fish taken in North Carolina today, one pound is shad; and out of every six pounds taken in 1880 one pound was shad. You are straining the waters clear of fishes; you are taking everything, whereas in the old days you took the most valuable and let the others go. All that is the direct result of your local method of handling the fisheries. I think, Mr. Chairman, that it ought to be very plain to those present that the moral to which I pointed this morning in discussing the oyster fisheries is equally applicable to the fin fishes. You have exactly the same conditions, and I will say that that particular State I discussed this morning, Louisiana, has recognized that, and after giving a trial to centralization in oysters they are now about to apply it to the fin fishes.

Chairman:—I would now like to have some short and informal talks from those interested in this subject. I would like to have the delegates give their ideas as to the best means for remedying conditions in their own particular sections.

MR. IVES.

This is a question in which I am very much interested, and have been for many years, as you all doubtless know. I have been interested in this business as a business for a long time, for this is my thirty-eighth year. So I ought really to know something about it. I started this business at Beaufort and Morehead in 1874. At that time there was no shipping done, no express rates, and North Carolina had most of her oysters then as they do now from Norfolk. After a few years, with the aid of Mr. Webb at Morehead City and the express agent there, I was able to build up a large oyster business. At that time there could be caught very large quantities of very fine oysters in North Carolina, in Core Sound, etc. Nothing was known as to the supply in Pamlico Sound at that time. All of the fishing business in North Carolina was done from Beaufort, Morehead City, and New Bern. Wilmington had no shipping business. Of course the shad interests from the sounds were as today. The herring was sold, put up in barrels, and there was no local shipping trade except at the points I spoke of. At that time the waters of North Carolina teemed with fish. If the fish were as plentiful today as they were when I began the business and the same amount of apparatus were fished, I venture to say that the Norfolk Southern Railroad could not furnish enough cars to haul them away. There have been times in the course of my business when there was a very great profit in handling the fish and oyster business. Today the conditions are entirely different. The fish have been caught up. They have been cleaned up. The fishermen are not any better off and the people are worse off. The oyster business is in exactly the same condition. When I started the business we could get all the oysters we wanted in Core Sound. No finer oysters grew than those which could be found in Core Sound, New River, and Jarrett's Bay; now they are all cleaned up or e'se of such small size that they are not of much value. In those days the dealers of Baltimore who could not get enough oysters to supply their demand from the Chesapeake Bay and were looking elsewhere for their supply, came to North Carolina. They put up factories here and they have about cleaned up all the oysters. Today the principal supply comes from Bay River, Jones Bay, and I am satisfied that there will not be as many oysters caught in Bay River all this season as I used to take out in a single day. Any farmer knows that if he takes virgin soil he can clean up woodlots and he will find that land very productive for several years, but if he continues to work that land and does not return anything to the soil, if he doesn't spread stable manure or something to keep that soil up it will soon be exhausted and yield nothing. The oyster and fishing business is just in the same condition. They have left comparatively nothing. I happened to be in Raleigh some fifteen or twenty years ago and had an interview with Mr. Fred Olds. I told him then what would be the result if something was not done to stop this destruction of fish and oysters in North Carolina. He asked what was the solution. I replied: "My opinion is to take it out of the hands of the politicians and the Legislature and put it into the hands of a commission of two, three, or five men and let them regulate this matter." Just so long as

you leave it in the hands of local politicians, nothing will ever be done to protect the real interests of the fisheries. Every county has diverse interests, and there are diverse interests in the same county, and the only thing to do is to put the whole matter in the hands of a commission, which can listen to the various complaints, ascertain local conditions, and legislate as is best for the whole people. It is a fact that the people along the coast think that the people up country have not a thing to do with it. They want to run the thing themselves. They think about this thing as the old wreckers used to think about the wrecks that came on shore—that the good Lord sent them for their own special benefit and that no one else, not even the people who were wrecked, had anything to say about it. I have heard it said that if dredgers went up Bogue Sound and over on New River and other points that the people living in that section would shoot at them. So you see that these people think that the fish and oysters belong to them because they happen to live in that immediate vicinity.

Now as to legislation, what I told Mr. Olds twenty years ago has surely proved true. The business is in just about the same state of chaos so far as legislation is concerned as it ever was, and so far as profits are concerned it is infinitely worse than it ever was. The last Legislature had a bill before them which seemed to me a most excellent one. I thought when the Committee was appointed by the Legislature of 1909, and they came through the eastern part of the State, that that was the wisest thing that North Carolina had ever done—to send out a commission of disinterested men to go through the section of the commercial fisheries of North Carolina, hear the fishermen and oystermen, and get at the thing at first hand, and then make a report to the succeeding Legislature. I thought that was practical and that something would be done, and I surely was very much disgusted and surprised when the last Legislature turned down all that work and nothing came of it, accomplished absolutely nothing, put back the industry just where it was, or perhaps in worse condition. The interests of fish and oysters will not be conserved until sweeping laws are passed and then enforced. Now as to the oyster, twenty-five or thirty years ago I probably shipped more oysters to Atlanta than any other one point. That was my big market. I am satisfied that I have not shipped an oyster to Atlanta now in ten years. We do not furnish the State of North Carolina one-tenth of the oysters that are sold. If the oysters are to be destroyed legally by the State and none put back, what can we expect other than what we have today? And the fishing business is going in the same way. Speaking of legislation, a few of us went to Raleigh some years ago and went before a committee. We tried to show them what the conditions were in North Carolina. Mr. Potter, who is here from Carteret County, was one of us. After a great deal of trouble we managed to get that committee together, and told them what we thought was needed. They finally told us to go back and draw up a bill and send it up. We did so, and Mr. Potter came up and we spent a day, possibly two, in perfecting that bill; one of the provisions of that bill was that in order to conserve the oyster industry of the State the administration of the law must be taken out of the hands of local politicians and put in the hands of a disinterested commission. The trouble is, they want to keep things in the hands of local politicians.

A Delegate:—As regards Bay River and Jones Bay we have about as many oysters there today as we ever had, but they are a little small.

Judge Graham:—I see we have a former Fish Commissioner with us, Mr. Theodore S. Meekins, and we would be glad to hear from him as to his views in this matter.

MR. MEEKINS.

In the first place it seems to me that we have plenty of law. When I began to study the fish question I found in the old Code, made in 1883, we had four pages relative to fishing. When The Code was revised in 1905 I think you will find about forty pages relative to fishing. I think today if you will add the statutes to The Code passed you would have one hundred and twenty-five pages or more relative to fishing laws of North Carolina, and it takes in all the counties that have fishing in them; and yet when you go up to the Legislature and talk about fish bills and some way of enforcing these laws, that has always been turned down. It is not a hard matter to pass a law to prohibit fishing anywhere, but it is an awfully hard matter to pass a law to get the machinery to enforce that law. We all know that our fishing industry has decreased and the oyster industry has decreased, and the point now is, what is the remedy? In 1909 there was a resolution passed appointing a Fish Committee to investigate the fishing conditions in North Carolina, and that was a very able committee, and it took in men from every part of the State. They did not travel through many counties before they found that it was absolutely impossible to undertake to make local laws for each place. So they recommended a general law, carrying with it an appropriation of ten thousand dollars, with sufficient power to make rules and regulations to suit the different sections of the State. When that report, in the way of a bill, was read to me that part which gave the Fish Commissioner the right to change the laws to some extent was the part I objected to. At first it did not appear to me that any number of men should have any right to legislate for our fishing industry. Since that time I have given the matter a great deal of study and read the laws and have thought about it a great deal, and I have come to the conclusion that the only way we can ever get a proper adjustment of our laws is to appoint a board of fisheries, and let that board of fisheries be clothed with the power to make such regulations as seem to be for the best interests of each particular locality. It is true you could not make a general law which would be applicable to all sections of the State. It is also true that you can not present to the Legislature of North Carolina the local conditions. It has been suggested to me that there is a danger in leaving this matter with five or seven or nine men. I believe that that is the nearest to a right thing that we can get, because there is danger of leaving it to one hundred and sixty men.

As to oystering, I remember from 1895 to 1911 the people from Virginia and Maryland came in our sounds in vessels ranging from fifteen to sixty tons and completely covered Pamlico Sound, which was full of oysters (and it is full today of small oysters and rocks), and dredged up our oysters and took them to Virginia and Maryland for planting; and we permitted it. I counted myself one day sixty steamer vessels dredging for small oysters, which they took to Virginia for planting.

I know that we should be ashamed of the condition of our oyster and fish industries, and I did feel very badly when Mr. Lee called our attention this morning to the conditions existing in North Carolina as compared with Virginia.

Chairman:—We have with us Mr. J. H. Potter, who is from one of the largest fishing counties of North Carolina, Carteret, and who has been engaged in the fishing industry for a great many years. He is from Currituck County. We should be pleased to hear from him.

Mr. Potter:—I have been engaged in this business for about thirty years. The effort of our people has been not to develop the industry, but to deplete it. In other words, to take in all they could get and do nothing for the industry. (The balance of Mr. Potter's talk could not be heard by the stenographer.)

Delegate from Craven County:—I have been fishing ever since I was eleven years old. We have never had any scarcity of fish until they put pound nets in our waters. Oyster dredges and pound nets have ruined the oyster and fishing industry in North Carolina. No longer ago than yesterday there was 10,000 pounds of small mullets caught and put on the market, which could not be sold. I have simply had to go out of the business in order to make a living for my family, because there was not a living in fishing.

Judge A. W. Graham then made a talk on

WHAT CAN NORTH CAROLINA DO?

It is a matter which I have thought on for many years. It has been my fortune, and some say misfortune, to serve a good many years in the Legislature for my county, Granville. I have been struck in examining the many industries of North Carolina as to how little attention we have paid to the conserving of many of our great natural industries. We have rather been disposed to let each locality work out its own ideas along its own lines. The consequence has been that we have not been sufficiently united along any one subject to make the success of it which should be achieved for that subject. I think any one who has been in the Legislature of North Carolina will bear me out in saying that there is no subject that causes more discussion in the Legislature of our State and upon which there is a greater diversity of opinion than upon this fish and oyster question. It is something like working the public roads. If there is anything that every man thinks he is an expert at, it is in working the public roads, and I have found in eastern North Carolina that the same opinion prevails with regard to the fish and oyster industries. The trouble is that we have had too much diversity and not enough unity. Recognizing this fact, the Legislature of 1909, of which I was the Speaker of the House, decided to appoint a committee consisting of three members from the House and two members from the Senate, and to this bill an amendment was made including the Speaker of the House and the President of the Senate. The duty of this committee was to visit all the fisheries along the coast and try to collect such evidence as would give them a true idea as to the real conditions of the fishing industries. The result of all this work was a report put in the form of a bill, which recommended that ten thousand dollars be given to the support of the Fisheries Commission. I myself would like to have seen it twenty thousand dollars, or as much as was needed to bring the industry back to the point where it could be self-supporting.

This is indeed a great industry, and means a great deal to the people of North Carolina. It has now reached a very low ebb, and the Oyster Commission is in debt and seems to go deeper in debt each year. The State has spent money to develop other sections of the State, in building the North Carolina Railroad, and I see no reason why a sufficient sum of money should not be spent to conserve this great natural resource which means so much to eastern North Carolina. Something has been said in regard to the opening of certain of the inlets and as to the shallowness of the inlets. I believe that the members in Congress from these sections should introduce a bill for a Federal appropriation for deepening these inlets and for keeping them open. A similar proposition was considered in 1824 and an engineer was sent by the Federal Government to look over the proposition, and in his report he said it was feasible. The matter was again taken up in 1840, but up to the present time nothing has been done.

Delegate from Brunswick County:—I want to state to these people that while the eastern counties are more acquainted with the oyster fishing and river fishing, Brunswick County, and a few other counties along the coast, only have the conditions of mullet fishing. In other words, Brunswick County has no shad fishery. There are two or three small rivers in Brunswick County and they afford no shad at all. Again we have no railroads through Brunswick County to give any chance to ship fresh fish or oysters. We see no oysters from Brunswick County for shipping and our only fishing is the surf fishing, which is the mullet fishing. The point I wanted to show is this: would a law which suited some of these eastern counties, would that law apply to Brunswick and others in regard to the mullet fishing?

A. That is the reason I recommended that a commission be appointed to make such rules and regulations as would suit your section and every other section of the State.

Delegate from Carteret County:—I am a fisherman by trade. The decrease of our fishing is going on fast. The purse seines made to catch fat-back are taking up edible fish and destroying these little fish by thousands of pounds. Now, we want protection. Unless our fish is protected there will be no fish. We want a mullet seine not under 1 1-4 inch bar and any gill nets not over 1 3-8 inches.

Q. Would you be willing to join in a request for a law to that effect? Would your county do that?

A. Yes.

At this point the Chairman of the Committee on Resolutions stated that that Committee was ready to report, and the chair called for the report.

REPORT OF COMMITTEE ON RESOLUTIONS.

The Committee on Resolutions appointed by the Convention beg leave to report as follows:

1. That we recommend that this Convention organize a permanent

association, to be known as The North Carolina Fisheries Association; and that a president; a first vice-president; secretary and treasurer; and vice-presidents representing each county represented in this Convention, and other counties engaged in commercial fishing; and an executive committee to be composed of the president, first vice-president, secretary and treasurer, and five other members of the Association, be elected.

2. That a legislative committee be appointed by the president by and with the advice of the executive committee, said legislative committee to be composed of members of the Association representing the different sections and different branches of the fishing industry.

3. Your committee respectfully recommends the following officers to serve for the term of one year and until their successors shall be appointed, viz.: for president, Mr. George N. Ives, of New Bern, N. C.; first vice-president, C. S. Vann, Edenton N. C.; secretary and treasurer, Dr. Joseph Hyde Pratt, Chapel Hill, N. C.; executive committee, Messrs. E. R. Daniels, of Dare County; T. J. Markham, of Pasquotank; W. H. Jones, of Pamlico; C. H. Sterling, of Beaufort; C. S. Wallace, of Carteret; Julian Wood, of Chowan, and A. S. Rascoe, of Bertie.

4. That the annual dues to be paid by members of the Association shall be twenty-five cents.

5. That the Executive Committee formulate and establish rules by which the Association shall be governed until the next annual meeting of the Association, at which time the committee shall recommend suitable by-laws and a constitution.

6. That the convention recommend the enactment by the General Assembly of a State-wide law regulating the preservation and taking of fin fish and shell fish in and from the waters of the State and providing that such law shall be executed by a fisheries commission appointed by the General Assembly, or otherwise, as may be provided, said commission to be vested with powers to promulgate rules and regulations that shall have the force and effect of laws and shall have the power to fix the penalty for the violation thereof, and that said law be formulated by the Legislative Committee to be appointed at this meeting and to report at the next annual meeting of this Association.

7. That the Executive Committee shall fix the time and place of the next annual meeting.

8. That the vice-presidents of the Association be recommended by the delegates in attendance from each county and appointed by the president to hold office until the next annual meeting.

9. That the convention extend its thanks to the Board of Commissioners for the county of Craven for the use of the court-house, and to the New Bern *Daily Journal*, the New Bern *Sun*, and other newspapers

of the State, for their kindly notices of this convention, and to the Chamber of Commerce of the city of New Bern, and to the citizens of New Bern generally for their uniform kindness and courtesy, and to the railroad companies which gave reduced rates to delegates to this convention.

R. A. NUNN, *Chairman*, Craven County,
E. M. KOONCE, Onslow County,
JORDAN CAROWAN, Pamlico County,
C. P. DEY, Carteret County,
JULIAN WOOD, Chowan County,
E. R. DANIELS, Dare County,
C. H. STERLING, Beaufort County,
T. J. MARKHAM, Pasquotank County,
H. J. GREGORY, Perquimans County,
M. W. HAYNES, Edgecombe County,
W. J. SMITHERWICK, Washington County,
J. F. SOMMERSETT, Brunswick County,
J. E. ROBINSON, New Hanover County,
J. T. DIXON, Jones County,
JOSEPH HYDE PRATT, Orange County,
Committee on Resolutions.

The resolutions were unanimously adopted.

Mr. Nunn proposed that an amendment be made to give the Fisheries Commission power to make rules and regulations suitable to the various districts.

Judge Graham:—I think it would be essential that this convention for which you are providing should meet before the next session of the General Assembly. We hope that a larger attendance will be at this convention than are here now and that every county will be heard from upon any bill which will be recommended to the Legislature.

Mr. Ward:—I think if you advertise that you are going to discuss a general fish law you will have to get the biggest auditorium in eastern North Carolina to hold them.

Dr. Pratt:—One resolution that was not read in the report of the Committee was one that we want to bring up on the floor of the house, and that is that this convention extend to Mr. W. McDonald Lee, Fish Commissioner of Virginia, our sincere thanks and appreciation for the time and trouble he has taken to come down here and tell us the result of his work in Virginia; and we also wish to express our thanks to Dr. H. F. Moore, of the United States Bureau of Fisheries, who has shown and has constantly shown his interest in our work in eastern North Carolina by spending weeks and even months in trying to show us how

to save ourselves from ourselves. I move we take a rising vote of thanks to these two gentlemen.

The resolution was unanimously adopted by a rising vote.

Mr. Lee, after gracefully thanking the convention for its kind words of thanks, said: "I think that the resolutions you have submitted cover the ground entirely. I believe that you will have admirable results and by the time of your next annual meeting you will be in a position to present a strong front to the Legislature for the adoption of these resolutions. I do not know the temper of your Legislature, but if I were a North Carolinian, especially from eastern North Carolina, I would go after that Legislature and would keep after them until something was done to reestablish this great industry. What you want is to be given a general law as concise and brief as possible containing a few basic principles in establishing your commission; then empower that commission of fisheries with such powers as will enable them to make sufficient rules or laws suitable for the various districts of the State. As for the details of Brunswick, or Chuchachuck, or whatever else you may call your counties, leave it to the discretionary powers of that commission, even to the point of taxation, and of restricting fishing here and there, and you will find that you will reap your best results."

The adoption of the above resolutions meant the organization of a North Carolina Fisheries Association, and the following fifty-eight members paid their dues and became charter members of that Association:

CHARTER MEMBERS OF NORTH CAROLINA FISHERIES ASSOCIATION.

<i>Name.</i>	<i>Address.</i>
Anderson, B.	New Bern, N. C.
Carawan, Jordan	Mesic, N. C.
Daniels, S. M.	Wanchese, N. C.
Daniels, E. R.	Wanchese, N. C.
Dixon, J. K.	Trenton, N. C.
Fulcher, C. R.	Mann's Harbor, N. C.
Gorden, A. W.	Hertford, N. C.
Graham, Judge A. W.	Oxford, N. C.
Gregory, H. J.	Durant's Neck, N. C.
Haynes, Milford W.	Tarboro, N. C.
Heady, M. W.	Swansboro, N. C.
Hobbs, J. C.	Durant's Neck, N. C.
Holden, John	Supply, N. C.
Huff, Hellen	New Bern, N. C.
Ives, Geo. N.	New Bern, N. C.
Jacobson, W. K.	Washington, N. C.
Jones, W. H.	Pamlico, N. C.
Koonce, E. M.	Jacksonville, N. C.
Lancaster, J. W.	Supply, N. C.
Leary, T. P.	Edenton, N. C.

<i>Name.</i>	<i>Address.</i>
Lee, M. S.	Morehead City, N. C.
Littleton, Capt. Geo. W.	Swansboro, N. C.
Markham, Thos. J.	Elizabeth City, N. C.
Meekins, T. S.	Manteo, N. C.
Midgett, C. P.	Rodanthe, N. C.
Midgett, L. N.	Skyco, N. C.
Moore, Dr. H. F.	Washington, D. C.
Morton, R. C.	Hubert, N. C.
Nunn, Romulus A.	New Bern, N. C.
Odum, G. A.	Swansboro, N. C.
Parish, J. J.	R. F. D. No. 2, Hertford, N. C.
Paul, B. P.	Pamlico, N. C.
Phillips, E. A.	Hubert, N. C.
Pratt, J. H.	Chapel Hill, N. C.
Privott, W. Scott.	Edenton, N. C.
Rea, P. L.	Edenton, N. C.
Robinson, J. E.	Supply, N. C.
Scarboro, Chas. H.	Mann's Harbor, N. C.
Simmons, J. J.	Trenton, N. C.
Smith, Thos.	Bogue, N. C.
Smitherwick, A. W.	Blount's Creek, N. C.
Smitherwick, E. T.	Blount's Creek, N. C.
Somersset, J. J.	Seaside, N. C.
Sterling, C. H.	Washington, N. C.
Swindell, W. A.	Washington, N. C.
Tillett, T. A.	Mann's Harbor, N. C.
Toler, John	Mashoes, N. C.
Tooker, H. H.	New Bern, N. C.
Vann, C. S.	Edenton, N. C.
Ward, A. D.	New Bern, N. C.
Ward, E. B.	Hubert, N. C.
Willis, A. L.	New Bern, N. C.
Willis, M. L.	Morehead City, N. C.
Wood, J. G., Jr.	Edenton, N. C.
Wood, H. G.	Edenton, N. C.
Wood, Julian	Edenton, N. C.
Wood, R. A.	New Bern, N. C.
Wooten, J. W.	Trenton, N. C.

Convention then adjourned until 7:30 p. m.

NIGHT SESSION.

WEDNESDAY, DECEMBER 13, 1912.

Chairman:—Gentlemen, it is now in order to have a call of the Convention to see whom each county will have to represent it as vice-president. Dr. Pratt will call the roll of fishing counties.

<i>County.</i>	<i>Vice-President.</i>	<i>Address.</i>
Currituck	Geo. Cason	Knott's Island, N. C.
Camden	J. B. Williams	Camden, N. C.
Pasquotank	T. J. Markham	Elizabeth City, N. C.

<i>County.</i>	<i>Vice-President.</i>	<i>Address.</i>
Chowan	T. H. Shepard.....	Edenton, N. C.
Gates	J. H. Hofter.....	Gatesville, N. C.
Hertford	D. C. Barnes.....	Murfreesboro, N. C.
Bertie	A. S. Rascoe.....	Windsor, N. C.
Washington	Van B. Martin.....	Plymouth, N. C.
Tyrrell	Mark Majette	Columbia, N. C.
Hyde	J. W. McWilliams.....	Ocracoke, N. C.
Dare	T. S. Meekins.....	Manteo, N. C.
Pamlico	Jordan Carawan	Mesic, N. C.
Beaufort	W. E. Swindell.....	Washington, N. C.
Edgecombe	M. W. Hanes.....	Tarboro, N. C.
Pitt	R. R. Cotten.....	Bruce, N. C.
Lenoir	D. T. Edwards.....	Kinston, N. C.
Craven	Bryce Anderson	New Bern, N. C.
Carteret.....	R. L. Daniels.....	Lupton, N. C.
Perquimans.....	H. J. Gregory.....	Durant's Neck, N. C.
Jones	J. T. Dixon.....	Trenton, N. C.
Onslow	R. C. Morton.....	Hubert, N. C.
New Hanover	J. O. Carr.....	Wilmington, N. C.
Brunswick	J. E. Robinson.....	Supply, N. C.
Pender .....	.....	.....
Columbus	J. A. Brown.....	Chadbourn, N. C.
Cumberland	J. H. Currie.....	R. 3, Fayetteville, N. C.
Cranville	Judge A. W. Graham.....	Oxford, N. C.

Mr. Markham:—I understood that these vice-presidents were to be members of the Association. I would state that the vice-president named for Camden is not here, and is therefore not a member.

Chairman:—The Committee on Nominations considered it advisable for the counties, as far as possible, to appoint vice-presidents, and if these counties were not represented and thus unable to join the Association, that they be notified of their election as vice-presidents and be requested to join the Association. If they do not wish to join the Association, why then the President would be requested to appoint a vice-president to represent that county.

Chairman:—Any county in Piedmont or western North Carolina interested enough to send delegates to the convention will be entitled to a vice-president. When we adjourned for supper the question was: What can North Carolina do to conserve the fishing industry within her borders? We would now like to continue this question.

Mr. Nunn:—An amendment to the resolution was brought into the convention this afternoon. I think that the change suggested ought to be made. I move that this amendment to give the Fisheries Commission power to make rules and regulations suitable to the various districts be adopted.

Motion carried.

At this point Dr. Pratt read some letters and telegrams of regret from delegates who were unable to attend: Messrs. J. H. Currie, W. M. Webb, John Shannon of Dare, J. E. Church, J. O. Kerr of Pender, B. F. Etheridge of Dare. Mr. Etheridge's letter was of particular interest.

BUXTON, N. C., December 11, 1911.

DR. JOSEPH HYDE PRATT, *State Geologist*.

SIR:—Yours of the 28th inst. received, notifying me of the fish convention to be held in New Bern on the 13th and 14th inst.

Under the existing circumstances it is impossible for me to attend. But by an experience of fifteen years as a fisherman all over the waters of North Carolina under varied conditions, I have made it a point to observe closely the forces that help in the destruction of the fish which teem in our waters.

It is a fact that the waters around the cape here (Cape Hatteras) seem to be a gathering place for shark, porpoise, dog fish, etc. Up the coast north of here they don't seem to be encountered in any great number. But on reaching the waters around Cape Hatteras the large body of fish are met by the great horde of shark, etc., playing awful havoc with the marketable fish, preventing the fisherman from catching them, and destroying countless numbers of young fish. By taking the proper action this can be diminished to a large degree. These shark, porpoise, dog fish, and other scrap fish can be caught at all seasons of the year and in great quantities. They can be utilized in guano, tanneries, etc., so that an establishment for the purpose will not only weaken the destroyers of thousands of dollars worth of fish, but will enable the fishermen at this point to increase their earnings a hundred per cent, at the same time paying a handsome dividend to the State or firm establishing this plant.

It has been my experience many times to cut open a shark and find more than a bushel of small fish inside. I have also found as many as six full grown shad inside one of these monsters.

Right at this point they seem to lay nearer the shore, in fact, right along the sand, so that it is an easy matter to catch them in almost any quantity desired. Should this letter be read in the convention, and the matter receive any consideration, I will state that I will give free of charge a suitable site for the location of a plant.

Should any further information be desired, I will gladly answer any correspondence.

Very sincerely yours,

(Signed)

B. F. ETHERIDGE.

Dr. Moore:—I should like to make some comments on that letter, that is, the utilization of a number of our fishes which now go to waste. It is a fact that on the coast of New England, and on the Canadian coast, there are herds of dog fish, shark, and other fish of this nature. They not only destroy a great many of the edible fishes at large, but work great havoc on the fishes caught in the nets. These fishes not only destroy but drive away a great many of the edible fish and are a very serious menace to the fishes. The Canadian government has taken cognizance of this fact and for several years has been carrying on experiments in the utilization of these dog fish, shark, etc.; not

only the utilization of the flesh of the fish in the production of fertilizer, but the use of these fish as an article of food. I know on some portions of our coasts there are considerable quantities of these fish which have proven quite a menace to our edible fish. The United States Bureau of Fisheries has also been experimenting, and it has been found that these fish, which are despised as an article of diet, are a very good food product. I have eaten it and it compares favorably with others which are recognized articles of food. The larger sharks are also valuable in this respect. In the waters of the Mediterranean Sea and other parts of the world the shark is by no means a despised fish. The shark is no more uncleanly in his habits than a great many of the fish we do consume. The Spanish mackerel and bluefish feed on the same class of food as the shark, and the individual fishes eaten are as a rule small.

Q. Is the fish known as the dog fish a species of shark?

A. Yes, but it is smaller than the shark.

Mr. C. H. Sterling, of Beaufort County:—Mr. Chairman and gentlemen, I am a fisherman, also sell fish, and know something about it. As to the needs of legislation there is no question in my mind that something ought to be done. We have been up against the fish question for about ten or fifteen years. I have had occasion to attend all these fish conventions and also did go to the Legislature in the interests of our section, to fight what we called bad bills. Now, if anything can be done by this convention that will help straighten these matters out I want to do it. I believe we are heading in the right direction. I believe the organization effected here today will have its weight and if carried on along the right lines will no doubt work great good to the fishing interests of North Carolina. As to the pound nets, drag nets, and seines, some man has said that the pound nets are the root of all evils. I think he is mistaken. I have seen seines pull in hundreds of little fish that a pound net would not catch. The same thing with drag nets. When this commission gets together to make a law, each kind of net will have to be looked after and each section or district or waters where the fishing is going on, the commission will have to arrange some rules or regulations that will suit that section, and I believe that they will do this, and I am willing to give my time and have done it, and if necessary a little money, to bring this matter about.

As to the oysters I want to say that for the last few weeks I have been down on the oyster rocks. I have no complaint to make against the inspector, but I was on the rock yesterday in Pamlico sound and bought about 200 bushels of oysters. Some of them were entirely too small. I called the man's attention to it and said, part of these oysters ought to be carried back into the Sound and deposited, but he said they were all doing it and unless they sold small ones they would have none

to sell. Now I bought some of those oysters that ought to have gone back into the Sound. For such a condition as that some regulation ought to be provided. I know it is mighty hard for a man who lives in that section to appeal to these people to throw the oyster back. I believe a bill can be made that will be suitable. There is no reason why it can not be done. I for one will help to put this thing in such shape that not only the laws can be passed but enforced.

Mr. W. E. Swindell of Beaufort County:—I would like to emphasize one point made by the Chairman of this convention, and that is in regard to our inlets. None of the inlets have half the water on the inside that they had a number of years ago. I think that accounts for the small number of shad which come into our waters. As a rule, they stay in deep water. In order to get in Hatteras Inlet they have to go into water not over 4 to 4 1-2 feet deep. Another thing that we want to consider is this: There has been a good deal of discussion on how to catch fish—we also have to consider the way to sell them. Shad and herring fish are sold all during the spring up to the latter part of April, then they come under the present laws for a closed season. There is no other fish that can be marketed until the middle of May, so that the dealer is practically put out of commission for a whole month and loses his trade. By that time our trade is gone. I think that question ought to be gone into by the gentlemen when they take up the question of recommendations, because the fish dealer must be able to get the fish to supply his customers. In regard to the different kinds of nets used, I think there is practically no difference from the destructive standpoint.

Mr. Ives:—What Mr. Swindell said about the closed season as affecting the interests of North Carolina and Virginia about the fishing is also true about the oyster business. As the law now stands and has stood for a number of years, we are not allowed to get any oysters until the middle of November. Some years oysters are good in October and we have calls for oysters, and if we can not furnish them, of course they go to Virginia; then when Virginia gets the trade there is not much use in our trying to get it back. It seems to me that the season ought to be left open to natural causes. I am just going to ask a question of personal privilege. I want to put myself right as to how I stand with politicians. I believe in politics, have voted all my life, and I believe politicians have a great deal to do in the shaping of our laws, and should have. I admire certain kinds of politicians, but I still contend that the fishing industry should not be made a matter of politics.

Mr. E. M. Koonce, of Onslow County:—Mr. Chairman, in answer to the inquiry that the chairman makes about the New River oyster, would say that they are right there now. It is a well-known fact that an oyster is bound to catch hold of something in order to live when it is spawned.

He wants to take hold of anything that is not dirty. If we were to save all the oysters that spawn in the waters of North Carolina they would stop up all the streams leading out to the ocean. We have a wonderful territory in Onslow County for the propagation of the oyster.

Mr. E. R. Daniels, of Dare County:—I want to say in regard to the depth of water in the inlets that Hatteras Inlet, New Inlet, and Oregon Inlet are the ones that the shad and herring come in. Not many come in at the lower inlets. Fifteen or 18 years ago we had at least 18 feet of water on Hatteras Bar. Today I guess we have 4 or 5 feet, and it is well known that shad and herring will not come in as shallow water as that. I believe the sea has just as many fish now as then, but they won't come in over that bar. The same thing about New Inlet. I was told two days before I left home, when I asked the question how much water could be got on New Inlet at low water—the fisherman said 12 or 14 inches. Now as to Oregon Inlet; 18 years ago there were 15 or 20 feet of water there. Today I guess there is about 4 feet on the bar. When the sea is rough that makes the channel break there. In regard to Mr. Evans' letter about shark and herring, there are thousands of them that lie around in the inlet, and they destroy thousands of fish. The shark, porpoise, and dog fish are the ones. The shark and herring come in at the last of ebb tide, when the water is the lowest.

Mr. Ives:—I should like to hear from Dr. Moore about that matter of the inlets.

Dr. Moore:—I have listened with considerable interest to what has been said about the closing of the inlets as a factor in the depletion of the shad fisheries in North Carolina. While I am not prepared to controvert these statements I would say in the first place that this depletion of the shad fisheries is not confined to North Carolina. It is a common complaint all along our coast where the shad fishery obtains. Now it so happens that along our coast there are a number of streams against which no such complaint can be lodged. For instance in Delaware River the same thing obtains and the water is deep. The fish are not there because they have been caught. There have been immense seines and immense gill nets which have been built to close up that stream and catch practically all the fish running up it. You have practically the same condition in the Hudson, and it is also to be found in Connecticut. Connecticut shad in colonial times were noted, and now they are becoming very scarce. So that you see this condition is not confined to your waters. The same condition is found in the waters of Canada. The closure of these inlets may have something to do in preventing the fish going up. Judge Graham made a statement a while ago which interested me mightily in regard to the shallow condition of the inlets in 1824. Almost every one here knows a time when the shad

were much more abundant in North Carolina than they are now. Remember that fact. Now, Judge Graham has stated in his address that this question of the closure of the inlets was brought up again in 1840. Each of these dates antedated the times when the depth of water in these inlets was at a low ebb. The depth of these inlets fluctuates. I wish to say it is probable and possible to excavate these inlets and make deeper waters, but I venture to say that an engineer will tell you it is practically impossible to maintain the depth there. It would be necessary to keep dredging continually. I rather regret that this question of the inlets has been broached. There is no doubt in my mind that over-fishing and poorly regulated fishing is the cause of the trouble, and I regret that anything should cloud this main fact in the mind of the convention.

Delegate from Brunswick County:—I was raised to a great extent mostly an orphan boy. My father died when I was small, and I have never had any advantage of any education. I have learned to work hard with my hands and these, of course, answer that question. As I have heard a good old Baptist preacher say that he had never had the advantage of rubbing his back against a college wall, and that is mainly what has happened to me. I was partly raised in shallow water and partly in the suds of the Atlantic Ocean, catching mullets, so you see I ought to know how to eat and appreciate mullets. Our facilities for fishing in Brunswick County only point to the mullet fishing, that is, so far as our fishing or selling any fish to any amount. We have no rivers in Brunswick County that afford any other fish to amount to anything except the mullet. It seems that these eastern rivers have great advantages of different kinds of bottom fish, such as the speckled trout and gray trout. Our fishing is known principally as the mullet fishing, which runs down the Atlantic coast. Always in our fishing season he comes into our waters only from three and one-half to four months, so it is only in such times we catch him, and if we do not catch him then we do not get him so far as the plans run in Brunswick County. Whereas to the outside surf fishing as we call it, the time is September, October, and November, which is all the time we have for fishing business except our little creek seines, when we get a few fish for our home consumption, also our hook and line. So mullet becomes our industry. We have no facilities there of shipping fish whatever, except salt fish. We have these mullets to clean and salt. During the cold winter months while there is no outside surf fishing done, there is more or less fishing with those little nets in those little rivers, and especially more so when the fish are numb and frozen to some extent, or in other words in a helpless condition. Consequently in these shallow rivers where the water is in little holes and the fish are numb and in a helpless condition, so to speak, they will surround them with one of these little

nets and take out all the fish, and maybe only a few of them can be eaten. I have seen them make compost out of a great many of these little fish.

A Delegate.—There are ten men catching fish now where there was one 40 years ago. They catch good or bad, large or small. And there are 10 to 20 people eating fish today where there was one 20 years ago. Taking this into consideration, you may not have thought that fish may be just as plentiful, yet each man can catch only so many.

Mr. Privott moves that we adjourn *sine die*. Motion lost.

Judge Graham.—I wish to tender my sincere thanks for the honor you have conferred upon me in asking me to act as your chairman today. I believe that much good has been accomplished by this convention, and hope that it will result in the passage of laws necessary for the protection of this great industry.

Dr. Pratt.—I would suggest that the president appoint a Legislative Committee by and with the consent of the Executive Committee by a letter ballot.

Mr. Ives.—What objection would there be if this Executive Committee meets at the Chamber of Commerce rooms to make up that committee tonight?

Mr. Sterling.—I think it is a matter which ought to be discussed very thoroughly by the members of the Executive Committee.

Dr. Pratt.—The resolution says that the Executive Committee should appoint this committee.

It was moved and seconded that the President and Executive Committee take up this matter tonight.

Dr. Pratt.—I move that we adjourn until 9 o'clock tomorrow morning.

Mr. Privott.—I make an amendment to Dr. Pratt's motion that we adjourn tonight *sine die*, and name the committee by using the letter ballot.

The Chairman.—Gentlemen, you have all heard Mr. Privott's amendment to Dr. Pratt's motion.

Amendment and motion carried.

On Wednesday night at 9 o'clock a most enjoyable smoker was extended to the delegates by the New Bern Chamber of Commerce in the splendid rooms of the Elks Club. This made a very pleasant close to a most successful convention.

There was a meeting of the Executive Committee during the smoker and arrangements were made for the appointment of a legislative committee.

REGISTERED DELEGATES.

The following persons registered as delegates to the Convention :

<i>Name.</i>	<i>County.</i>	<i>Address.</i>
Joseph Hyde Pratt.....	Orange	Chapel Hill, N. C.
Thos. J. Markham.....	Pasquotank	Elizabeth City, N. C.
Henry D. Aller.....	Carteret	Beaufort, N. C.
John A. Royall.....	Carteret.....	Boston, Mass., and Beaufort, N. C.
C. H. Scarboro.....	Dare	Mann's Harbor, N. C.
Jesse J. Wilkinson.....	Beaufort	Belhaven, N. C.
L. N. Midgett.....	Dare	Skyco, N. C.
John Tolar.....	Dare	Mashoes, N. C.
C. S. Vann.....	Chowan	Edenton, N. C.
H. G. Wood.....	Chowan	Edenton, N. C.
Jno. G. Wood, Jr.....	Chowan	Edenton, N. C.
T. Tillett.....	Dare	Mann's Harbor, N. C.
C. R. Fulcher.....	Dare	Mann's Harbor, N. C.
Thos. Smith	Carteret	Bogue, N. C.
G. W. Littleton.....	Onslow	Swansboro, N. C.
Julien Wood.....	Chowan	Edenton, N. C.
J. E. Robinson.....	Brunswick	Supply, N. C.
J. F. Somerset.....	Brunswick	Seaside, N. C.
John Holden	Brunswick	Supply, N. C.
J. W. Sanders	Carteret	Ocean, N. C.
J. H. Potter.....	Carteret	Beaufort, N. C.
C. P. Dey.....	Carteret	Beaufort, N. C.
J. J. Parrish.....	Perquimans	Hertford, N. C.
W. H. Jones.....	Pamlico	Pamlico, N. C.
D. L. Ward.....	Craven	New Bern, N. C.
J. Leon Williams.....	Craven	New Bern, N. C.
Walter Goodwin	Carteret	Lupton, N. C.
A. W. Graham.....	Granville	Oxford, N. C.
W. S. Privott.....	Chowan	Edenton, N. C.
W. S. Chadwick.....	Carteret	Beaufort, N. C.
Thos. Daniels	Craven	New Bern, N. C.
Milford W. Haynes.....	Edgecombe	Tarboro, N. C.
M. L. Willis.....	Carteret	Morehead City, N. C.
M. W. Heady.....	Onslow	Swansboro, N. C.
G. A. Odum.....	Onslow	Swansboro, N. C.
J. C. Riggs.....	Onslow	Swansboro, N. C.
W. T. Gillikin.....	Carteret	Marshallberg, N. C.
E. M. Koonce.....	Onslow	Jacksonville, N. C.
Jordan Carawan	Pamlico	Mesic, N. C.
J. W. Lancaster.....	Brunswick	Supply, N. C.
E. B. Ward.....	Onslow	Hubert, N. C.
E. A. Phillips.....	Onslow	Hubert, N. C.
Vession Simpson	Carteret	Smyrna, N. C.
Hellen Huff	Craven	New Bern, N. C.
H. H. Tooker	Craven	New Bern, N. C.
M. S. Lee.....	Carteret	Morehead City, N. C.

<i>Name.</i>	<i>County.</i>	<i>Address.</i>
C. L. Stevens.....	Craven	New Bern, N. C.
E. R. Daniels.....	Dare	Wanchese, N. C.
S. M. Daniels.....	Dare	Wanchese, N. C.
Theo. S. Meekins.....	Dare	Manteo, N. C.
Charlie Hancock	Dare	Manteo, N. C.
A. L. Willis.....	Craven	New Bern, N. C.
H. J. Gregory.....	Perquimans	Durant's Neck, N. C.
Paul Woodard	Pamlico	Whartonville, N. C.
R. C. Morton.....	Onslow	Hubert, N. C.
D. J. Sanders.....	Onslow	Hubert, N. C.
B. P. Paul.....	Pamlico	Pamlico, N. C.
J. K. Dixon.....	Jones	Trenton, N. C.
J. B. Blades.....	Craven	New Bern, N. C.
R. A. Nunn.....	Craven	New Bern, N. C.
C. H. Sterling.....	Beaufort	Washington, N. C.
W. E. Swindell.....	Beaufort	Washington, N. C.
P. L. Rea.....	Chowan	Edenton, N. C.
W. K. Jacobson.....	Beaufort	Washington, N. C.
A. D. Ward.....	Craven	New Bern, N. C.
Geo. N. Ives.....	Craven	New Bern, N. C.
J. C. Hobbs.....	Perquimans	Durant's Neck, N. C.
J. J. Simmons.....	Jones	Trenton, N. C.
R. L. Daniels.....	Carteret	Lupton, N. C.
W. J. Smithwick.....	Beaufort	R. No. 2, Blount's Creek, N. C.
E. T. Smithwick.....	Beaufort	R. No. 2, Blount's Creek, N. C.
J. M. Wooten.....	Jones	Trenton, N. C.
Jesse J. Wickim.....	Beaufort	Belhaven, N. C.
T. P. Leary.....	Chowan	Edenton, N. C.
H. S. Carawan.....	Pamlico	Mesic, N. C.
George H. Lupton.....	Carteret	Lupton, N. C.
W. M. Goodwin.....	Carteret	Lupton, N. C.
S. P. Willis.....	Beaufort	Washington, N. C.
Jas. E. Wade.....	Carteret	Harker's Island, N. C.
S. F. Harris.....	Carteret	Marshallberg, N. C.
H. F. Moore.....	.....	Washington, D. C.
W. McDonald Lee.....	.....	Richmond, Va.

Many of the delegates who were unable to attend the Convention wrote letters of regret and told of their interest in the fishing industry. The following letters will illustrate the sentiment that has been aroused throughout a large portion of the State in regard to the protection of our fisheries:

CHARLES A. ARMSTRONG,
ATTORNEY AND COUNSELLOR AT LAW.

TROY, N. C., November 21, 1911.

JOSEPH HYDE PRATT, Ph.D., *Chapel Hill, N. C.*

MY DEAR SIR:—Yours of the 18th to hand. The subject matter of your letter is of vital interest to the citizens of our State, and their thanks are due the Geological Survey for the interest taken in the matter by that body.

You are quite right in your statement that legislation that tended for conservation was met, fought and defeated by and for purely local interests.

I'll be very glad to attend the convention if matters of business do not turn up to prevent.

With kind regards, I remain,

Faithfully yours,

CHAS. A. ARMSTRONG.

ASHLEY HORNE.

CHARLES W. HORNE.

ASHLEY HORNE & SON,

MERCHANTS.

CLAYTON, N. C., November 28, 1911.

HON. JOSEPH HYDE PRATT, Ph.D., *State Geologist, Chapel Hill, N. C.*

DEAR MR. PRATT:—I have just returned from New York and find your letter of the 16th unanswered.

I note what you say as to whether or not I can attend and take part in the proceedings of the convention to be held in New Bern on December 13th and 14th.

In reply, I wish to say that I stand for everything that you have mentioned in your letter. I feel an interest in the conservation in which you speak. In other words, I represent progress, and stand for the progress of our State in all her various industries. I represented this class of legislation in the last Legislature, in which I was a member, and I regret that my influence was not such as to bring more things to pass for the progress and good of our State than we did. In fact, my energy in boyhood was for the betterment of myself and divided with my country. As evidence of this fact I am today an Appomattox soldier, and the passing of time which has silvered my hair, and the responsibility that has come to me through my endeavors, I am not certain whether I can be with you on the 13th and 14th or not. I hardly know one day where I will be called the next, either in my private or public affairs.

I will keep you in mind, and if I can be with you I will do so. However, I think you can get men who would be of greater influence for your cause than myself.

With kindest regards and best wishes, I am,

Yours truly,

ASHLEY HORNE.

MANUFACTURERS' CLUB,

HIGH POINT, N. C.

HIGH POINT, N. C., November 24, 1911.

MR. JOSEPH HYDE PRATT, *State Geologist, Chapel Hill, N. C.*

DEAR SIR:—In reply to your invitation of November 16th, beg to say that it will be my pleasure to be present at the Fish and Oyster Commission to be held in New Bern, December 13-14. Hoping that I may be able to render some help to this great interest that means so much to the upbuilding of our State,

Yours in the cause, very truly,

J. E. KIRKMAN.

WILMINGTON, N. C., December 11, 1911.

DEAR DR. PRATT:—I thank you for your letter of 28th, notifying me of my appointment as a delegate to the fish convention at New Bern. I regret that other engagements will prevent me being present, but hope your meeting will result in much benefit to the fish industry.

Yours cordially,

J. O. CARR.

HOUSE OF REPRESENTATIVES U. S.

COMMITTEE ON

REFORM IN THE CIVIL SERVICE,

WASHINGTON, D. C.

AT DUNN, N. C., November 27, 1911.

DR. JOSEPH HYDE PRATT, *Chapel Hill, N. C.*

MY DEAR DR. PRATT:—Your kind favor in reference to the fish convention to be held December 13th and 14th at New Bern, North Carolina, has been received and noted. In reply I beg to state that I am deeply interested in this work, and I would be glad to attend the convention, but I will be in Washington at that time. I hope you will lose no time and spare no efforts in making this convention a successful one, as it is very important. Our people of the Cape Fear section and especially those at Fayetteville are very much interested in reformed fish legislation.

Yours very truly, H. L. GODWIN.

OFFICE OF

A. L. QUICKEL,

ATTORNEY AT LAW.

LINCOLNTON, N. C., November 25, 1911.

DR. JOSEPH HYDE PRATT, *State Geologist, Raleigh, N. C.*

DEAR SIR:—Your favor of the 16th received, asking me to advise you if I could attend the fish convention at New Bern, December 13-14.

I should like very much to be present and hear the entire subject of protecting the fishing interests of North Carolina discussed, but on account of the distance I live from the meeting place and other business demands upon my time, it seems impossible for me to arrange to be present. I hope some measure for fish protection can be devised that can pass into law and be respected.

With best wishes in your endeavor, I remain,

Yours very truly, A. L. QUICKEL,
Representative from Lincoln County.

WHAT SHALL WE DO WITH OUR FISHERIES?

BY JOSEPH HYDE PRATT.

At the Fisheries Convention which was held in New Bern, December 13, 1911, many subjects appertaining to the fisheries of the State were discussed, the principal points of which that were taken up at the Convention were as follows:

1. That North Carolina instead of being *first* in the output of her fisheries as is warranted by the abundance of her inland waters, which are peculiarly adapted for the maintenance of commercial fisheries, now holds *eleventh* place among the Atlantic and Gulf States.

2. That the ascendancy of these States, particularly Virginia, Maryland, Connecticut, and Louisiana, has been obtained entirely through the *enforcement* of such regulations as would allow a reasonable catch from their fisheries and would preserve a sufficient part of the fish, so that the supply of each succeeding year would steadily increase instead of diminish.

3. That the decrease in the North Carolina fisheries is undoubtedly due to very heavy fishing of all kinds of apparatus, and the violation of the laws that have been passed to regulate fishing. This applies to both fin fish and shell fish.

4. That the most noticeable decrease in North Carolina fin fish has been among her more valuable fish, such as shad and herring.

5. That the oyster industry of North Carolina is at its lowest ebb, and as stated by Honorable McDonald Lee, Oyster Commissioner of Virginia in an article on the oyster industry, in regard to the production of oysters, "North Carolina is hardly in the running."

6. That instead of the fish industry being worth from \$7,000,000 to \$8,000,000 per year, it is worth less than \$2,000,000 per year.

7. *That instead of North Carolina supplying her home consumption with fish and oysters she is obliged at the present time to obtain a considerable proportion of them from other States.* This perhaps expresses the awful decrease in the fisheries of the State better than anything else. We should not only be able to produce all the fish and oysters needed by the people of North Carolina, but should have a very large export trade. The following from the *Wilmington Morning Star*, of December 2, 1911, emphasizes this condition:

The fish, oyster and game problem of North Carolina demands serious attention and vigorous remedies for their restoration. We hang our heads in shame when Wilmington restaurateurs advertise Norfolk oysters, while the once famous New River oyster has practically disappeared from the market.

However, our Myrtle Grove and Stump Sound oysters would be the equal of New River's if the State were to do the right thing by the industry. Fine oysters and fish, from Currituck to Brunswick, could be produced in such abundance as not only to supply North Carolina, but other States. Intelligent legislation must be substituted for selfish interests. When Wilmington buys oysters from Norfolk and soft shell crabs from Baltimore, something is radically wrong.

There is no doubt that one of the main reasons why the present conditions exist is that our laws are not enforced, and that in many instances fish legislation has been passed purely for local reasons and not in the interest of the industry as a whole. Just so long as such conditions exist the majority of the fish counties of the State as a whole will suffer and on account of the selfishness of a few counties.

8. Another point that was particularly emphasized at the Convention was *that the fisheries of North Carolina belong to the whole State, and that the citizens of the State at large should be interested in their preservation and perpetuation.*

It is only as the people of the State do begin to realize that the fisheries belong to the State and that they all have a right in them, and that the right to use them should be regulated that the State will be able to accomplish what is desired. But nothing can be done as long as it is left to the individual counties and the fisheries question is considered a local county or township one. The fisheries of the State can be very rapidly increased and brought to the point where they should not only be on a par with the other maritime States, but should exceed them as is warranted by the natural conditions existing in eastern North Carolina.

It may be of interest to state what some of the other States have accomplished along certain lines in connection with their fishing industries.

WHAT OTHER STATES ARE DOING WITH THEIR FISHERIES.

In Rhode Island* there were leased last year 5,734.5 acres of bottoms for oyster cultivation at \$10 per acre, and 13,286.5 acres in deeper water at \$5 per acre. This makes a total of \$123,777.50 that Rhode Island received for the rent of her oyster lands.

In Connecticut,† where the oyster bottoms or lands were sold outright, there are 74,514 acres listed that are assessed at \$1,073,105.75, which are taxed like other property.

Alabama has recently passed oyster laws that will regulate the industry and at the same time make liberal provision for the cultivation of the oyster. Dr. H. F. Moore‡ of the United States Bureau of Fisheries, has stated that "one of the most valuable assets possessed by the

*Report Proceedings Third Annual Convention Nat. Asso. Shellfish Commissioners, p. 27, 1911.

†Report of Commissioner at Convention Shellfish Commissioners, Boston, 1912.

‡Report Proceedings Third Annual Convention Nat. Asso. Shellfish Commissioners, p. 94, 1911.

Alabama Oyster Commission is the absolute purity of the water in which the oysters grow. This section lies in a zone far removed from any contaminating influences which could possibly defile the oyster bottoms. The day is not distant when this one feature of the Alabama situation will be reckoned as a potent factor in the upbuilding of the industry, and will result in bringing much of the oyster traffic of the nation to the tidewaters of the State." The Governor of Alabama* has interested himself in this industry and in urging passage of the oyster bill said: "The oyster bottoms owned by Alabama constitute one of our most valuable assets, and should be properly developed and conserved. The first annual report of the Oyster Commission of Alabama shows that the State owns 250,000 acres of oyster bottoms which, according to reliable estimates, should within the next fifteen or twenty years net the State from rentals many thousands of dollars annually. It is shown by this report that these oyster bottoms possess unusual advantages, owing to the fact that the river system of the State brings from the water-sheds to the tidewaters where the oysters grow the food requisite for the thrifty growth and the lime necessary for the shell construction. I would suggest for your consideration the propriety of appropriating the sum of \$15,000, payable in two annual installments for the proper development and conservation of this important industry, the amount to be payable whenever in the judgment of the Governor the condition of the treasury will warrant."

Virginia has perhaps made the greatest progress of any of the southern States in regard to its oyster industry, and probably also its fin fish industry. In regard to the former it last year turned over to the State treasury \$81,000 as the State's income from the oyster industry.

Louisiana has just passed adequate laws for the protection of its oysters and provided for their cultivation, and last year Louisiana produced 1,966,677 bushels of oysters, valued at \$1,311,118.

New Jersey has been able, through a competent Commission, to build up its oyster industry until last year the value of the oysters produced from the natural beds was \$249,000 and from the cultivated beds \$1,120,000, making a total amount from the fisheries for the past year of \$1,369,000.

As we realize from the above what other States are doing, it is enough to make us hang our heads in shame to have permitted our oyster industry to become almost a negligible quantity. It is not as though the State was not in a position to protect and build up its oyster industry, because this can be done. We have suitable waters in which oysters will grow very abundantly and of splendid quality, both on the natural rock and in areas where no oysters now exist, but where they can be culti-

*Report of Proceedings Third Annual Convention Nat. Asso. Shellfish Commissioners, p. 92, 1911

vated. Our waters are very far removed from any contaminating influences that exist in so many States, due to the large amount of waste and sewerage, and the question of the oysters being polluted does not bother the oystermen of this State. It is a serious problem in many of the northern States, where there is such a large amount of waste and sewerage dumped into the harbors along the coast. The pollution of waters that flow over oyster bottoms in other States has increased the difficulties of making the oyster industry a success, and yet such States as Massachusetts, Rhode Island, New York, and New Jersey, have made the oyster industry a very profitable one.

Experimental work, that has been carried on in North Carolina waters regarding the cultivation of the oyster, has shown that it is practical and can be made profitable for the cultivator and for the State.

It is an undisputed fact amongst those who are thoroughly familiar with the life history of the oyster, that with the conditions as they exist in North Carolina it will be absolutely impossible for the natural oyster rock or bottom to restock itself unassisted. There are two ways in which the State can assist in the building up of the oyster grounds of the State: first, by passing adequate legislation regulating the taking of oysters, the culling of oysters, and restricting the season for taking oysters; second, by encouraging the cultivation of oysters on bottoms where no natural rock exists.

The low ebb to which the oyster industry in North Carolina has reached is well expressed in the following table:

State.	Catch of Oysters, 1910-'11.	
	Bushels.	Value.
Maryland.....	3,500,000	\$.....
Virginia.....		3,500,000
North Carolina.....	121,219	24,243
Louisiana.....	1,966,677	1,311,118

Are we satisfied with the above conditions? We should not be, and the General Assembly of 1913 should be petitioned and urged to pass adequate fishery laws that will be State-wide and will protect and build up our valuable fishing industries.

The fin fisheries are also being rapidly depleted on account of inadequate laws regarding the catching of fish. Undoubtedly the only remedy possible is for the State to establish a Fisheries Commission, which will have jurisdiction over all the commercial fisheries in the State and

be given specific power to enforce all laws relating to the fishing industry; to do away with all obsolete laws, and to make such regulations as are best suited to the various sections of tidewater North Carolina. This Commission should be non-political and should employ a capable and competent man as Commissioner, who has had the experience that will equip him for handling the problem that now confronts the State.

INFORMATION OBTAINED BY LEGISLATIVE FISH COMMITTEE APPOINTED BY THE GENERAL ASSEMBLY OF 1909 TO INVESTIGATE THE FISHERIES OF NORTH CAROLINA

COMPILED BY THE STATE GEOLOGIST

INTRODUCTION.

For many years the legislatures of North Carolina have spent much time and effort in trying to solve the various fish problems which have been presented to them by representatives from tidewater North Carolina. The members of the General Assembly, having no first-hand knowledge as to the actual conditions in connection with these fishing industries, and having to rely entirely on second-hand information and the squabbles of individuals, felt that the time had come when the law-making body of North Carolina should have some actual data on which to base what appeared to be much needed legislation. With this idea in view the following resolution was passed by the General Assembly of 1909:

Resolved by the House of Representatives, the Senate Concurring:

SECTION 1. That there shall be created a committee of five, three to be appointed by the Speaker of the House from the members of the House of Representatives and two by the President of the Senate from the members of the Senate. Of the three members of the House, one shall be from the western part of the State, one from the central part of the State, and the third from the eastern part. The President of the Senate shall appoint one member from eastern North Carolina and one from the central part of the State. None of the five members of the committee shall be financially interested in any of the fisheries.

SEC. 2. This committee shall thoroughly investigate the fisheries of North Carolina, including fin fish, oyster, clam and other mollusca, crab, lobster, terrapin, etc., and make a report in the form of a bill to be presented to the Legislature of 1911, which will embody such legislation as in their judgment they deem best for the building up of the fisheries of North Carolina.

SEC. 3. In order to facilitate the work of this committee, they are hereby authorized to request the Commissioner of the U. S. Bureau of Fisheries to detail one of their experts to sit with the committee during its deliberations. The committee is further authorized to visit and examine any portion of the waters of North Carolina which they deem necessary in order to fully inform themselves upon the existing conditions relating to the fishery industries. This committee is also further authorized to use the State boat under the control of the Oyster Commissioner in going from one part of the rivers and sounds of eastern North Carolina to another. The committee is also further authorized to call in for consultation the Fish Commissioner, the Oyster Commissioner, the State Geologist, and any other public servant

that they believe can give them any information of value regarding the fisheries industries. They are further authorized to sit at some central point in eastern North Carolina after they have visited what places they deem necessary for the collecting of information, where delegations of fishermen or representatives of fishermen from various portions of eastern North Carolina can appear before the committee to give information regarding the fisheries of the State.

SEC. 4. The committee shall be allowed all their actual expenses in attending to this work and four dollars per diem while in the actual performance of their duties, but the per diem shall not be for more than thirty days.

SEC. 5. This act shall be in force from and after its ratification.

Ratified this the 14th day of March, A. D. 1909.

The personnel of the Committee appointed by the General Assembly of 1909, under a general resolution, was as follows:

W. C. Newland, Lieutenant-Governor and President of the Senate; A. W. Graham, Speaker of the House of Representatives; Senators E. L. Travis of the Fourth District, and John A. Barringer of the Twenty-first District; Representatives R. A. Doughton of Alleghany, Harry Stubbs of Martin, J. H. Currie of Cumberland, and Dr. H. F. Moore, an expert of the U. S. Bureau of Fisheries, who was asked to serve as a member of the committee.

The resolution also authorized the Committee to call in for consultation the Fish Commissioner, the Oyster Commissioner, and the State Geologist; and under this authority the State Geologist was requested by the Committee to make the trip with them. The Fish Commissioner and the Oyster Commissioner were with the Committee during part of the trip of investigation.

1909 TRIP OF INVESTIGATION.

The information given beyond was obtained at public meetings held at various places in the tidewater country of the State, the following itinerary having been carried out:

ITINERARY OF FISH COMMITTEE.

Tuesday, July 6.—Assemble at Edenton. Spend the day going up Chowan River, across the sound to mouth of Roanoke River.

Wednesday, July 7.—Public meeting at Edenton. Fishermen from Pasquotank, Perquimans, Chowan, Gates, Hertford, Bertie, Washington and Tyrrell counties attended this meeting.

Friday, July 9.—Public meeting at Manteo, Dare County. Trip to Nags Head.

Saturday, July 10.—Sail around Roanoke Island, noting conditions at Oregon Inlet, New Inlet, marshes, etc.

Sunday, July 11.—Nags Head.

Monday, July 12.—Meeting at Point Harbor, Currituck County. Fishermen in Camden and Currituck counties attended.

Tuesday, July 13.—Manteo to Stumpy Point, to Long Point and to Hatteras. Meeting at Hatteras at night.

Wednesday, July 14.—Informal meeting at Hatteras in morning. These meetings accommodated the fishermen all along the banks from Ocracoke Inlet to Cape Hatteras.

Thursday, July 15.—Meeting at Swan Quarter in morning for fishermen and oystermen from Hyde and parts of Beaufort and Pamlico counties.

Friday, July 16.—Meeting at Washington, Beaufort County.

Saturday, July 17.—Sail from Morehead City to Atlantic, examining Core Sound and Beaufort harbor.

Monday, July 19.—Meeting at Beaufort. For the fishermen and oystermen from Carteret and part of Craven counties.

Tuesday, July 20.—Examination of conditions in Carteret County and Government Laboratory.

Wednesday, July 21.—Meeting at New Bern, Craven County.

Thursday, July 22.—Meeting at Jacksonville, Onslow County.

Friday, July 23.—Meeting at Wilmington, New Hanover County.

Saturday, July 24.—Meeting at Southport, Brunswick County.

REPORT OF MEETINGS

EDENTON MEETING.

JULY 7, 1909.

The meeting was called to order by the Chairman, Lieutenant-Governor Newland, who spoke as follows:

Gentlemen:—We are here in obedience to a resolution passed by the State Legislature, hoping that we might, after visiting the waters in eastern North Carolina, make some recommendations to the next Legislature that would be beneficial to the fishing interests of the State. And I would say that in obedience to that resolution we are here today. The proceedings of this committee will be in the nature of a legislative report, and it is earnestly requested that every citizen here will give the committee all the information he has, in order that we may be informed. This is your meeting and you are wanted to talk. We are here to hear you, not for you to hear us, for, speaking for myself, I know nothing about the fishing interests. I came here absolutely ignorant and unbiased, and we are here to hear you and to hear recommendations, and I will now ask Judge Graham to give in detail the object of this meeting.

This was followed by a speech of Judge A. W. Graham, Speaker of the House of Representatives, as follows:

Mr. Chairman and Fellow Citizens of Northeastern North Carolina:—There are some people in North Carolina who think the fish and oyster interests are mere local matters and that the great body of the State has nothing to do with it, and that only such laws should be passed as are recommended and endorsed by the people of that locality. I am one among those who believe that we all compose one grand old State; that what is to the interest of the people of Chowan is likewise to the interest of Granville. We are a great State. There are many industries in North Carolina that redound to the credit of the State, and would reflect much more credit to the State if they were thoroughly prosecuted. The manufacturing interests are more in the central part of the State, in which I live; also the mining regions are in the part where the Lieutenant-Governor lives. The agricultural interests predominate in our State and are of joint interest to us all. The fishing interest, which I class second to none of them, is peculiarly the interest of this section of North Carolina, and it is one in which every true North Carolinian ought to take a deep interest, because we can not benefit one portion of our State without all of us receiving some influences that tend to the upbuilding of our own State.

It has been my fortune, some say misfortune, like every other gentleman of the committee, to have been a member of the Legislature for many years.

*In order that the information obtained at the meetings held by this Legislative Committee should be accurate, competent stenographers attended all the meetings of the Committee and transcribed in shorthand all that took place at them. The stenographers accompanying the Committee were Miss H. M. Berry, of Chapel Hill, N. C., and Miss Sophie D. Busbee, of Raleigh, N. C.

I have listened, with great interest, to the discussions of these oyster and fish problems by the members of the Legislature from this section, and from my observation and from the information that I have obtained from the gentlemen from this section of North Carolina, I believe that you have within your grasp one of the greatest interests of this State. There is another thing that I have observed, though, and that is that the fishermen are never agreed among themselves. It is a peculiar fact, and some of you would be struck with the force of the remark if you could go up to the Legislature and listen to the discussions of the various matters by the gentlemen composing these committees. But for the fact that they are all so in earnest, you would think there was a regular circus going on at these committee meetings. If you attempt to carry out the views of one person about this matter, in the eyes of another you ruin the fishing interest of North Carolina. That does not take place at one session of the Legislature, but at absolutely every session. It is very difficult to understand why such a state of affairs should exist. To the men of the mountains and of the Piedmont it seems almost inexplicable until you study the question and see that the same law that would be applicable to one portion of North Carolina would not work and prove beneficial to the others, and also to realize the fact that some men in certain portions of a district want very stringent laws passed in regard to the fishing in North Carolina, and they will advocate the most stringent law possible, and then at the end of the bill they will have another clause inserted: "*Provided*, this does not apply to County." Every fisherman wants the fishing law to apply to the county in which he does not live. But, I am glad to say, there seems to be more uniformity of sentiment; there seems to have been a broadminded conception of the whole question aroused in this part of North Carolina. After these matters were thoroughly discussed up there and the committees disagreed among themselves—and, mark you, that nearly every man on the committee was from this section of the State—it was thought best by those gentlemen that a commission be appointed in order to investigate these matters and recommend to the ensuing Legislature such laws as would be adapted to each section of the State and would not work an injustice to any.

So, upon a motion of a gentleman from this section, a resolution was presented authorizing the appointment of this committee, consisting of three members from the House of Representatives, one from the east, one from the center, and one from the west, and the Speaker and two members from the Senate, together with the President of the Senate. That is the reason the Lieutenant-Governor and myself are here today. I will read this resolution. (Reads resolution.)

Now, gentlemen, we are here by virtue of that resolution. We are unfortunate in not having the services of Governor Doughton of Alleghany. He is a man of long experience in the Legislature and, you know, was for a while Lieutenant-Governor. He is detained at home, and we will not have the benefit of his services. Mr. Currie of Cumberland is here; Senator Travis of Halifax is here; and Senator Barringer of Guilford will be here today. We come now with no preconceived ideas in regard to it. We are come with our minds open and unprejudiced, to talk with you, as brother to brother, because we are all interested in this matter. We are all now, as it were, in one great partnership. We want every man in this house whether he is a professional man, whether he is a farmer, whether he is a fisherman, or whether he is an everyday laborer, we want you all to feel that you have an interest in

this matter, and to express your views freely to us today. Whatever tends to build up this grand section of northeastern North Carolina will certainly redound to the good of our State. We bespeak your hearty coöperation by giving advice and assistance, and if any man presents views that don't agree with the views of other gentlemen here, let us have a full and free discussion, because it is by rubbing together our minds that we will be able to reach some kind of a conclusion.

If you will take the map of North Carolina, examine and compare these waters of yours with the waters of Virginia, Maryland and Connecticut, you will see that we have, perhaps, a greater area that could be rendered profitable, if proper laws were enacted, than any one of these States; but, unfortunately, I do not know what the reason is, last year Virginia made \$68,000 clear out of her fish and oysters; with not one-fourth of the territory that you have here, Louisiana cleared \$18,000; and Connecticut, with not one-fourth the territory that you have, made \$38,000, while North Carolina went \$8,000 in debt. Is it in the administration of the law? Is it for want of proper laws? What is the cause of these things?

I will say, though, that that loss was not in the conduct of the fish part, because we made a slight profit in the administration of the fish laws in North Carolina, but in the administration of the oyster laws in North Carolina we are now between \$8,000 and \$10,000 in debt, while other States have reaped a harvest.

Chairman:—The Committee will now be glad to hear from any one personally.

Mr. Pruden:—Our people are not given to much speaking. We always find it very difficult to get those who are deeply interested and well informed to express themselves in person. I know a great many gentlemen here have views about this matter and it will be only necessary to get them to express those views in order to be informed. I am not a fisherman myself, nor the son of a fisherman. I know there are many men here who are much more practical than I, who ought to be heard from on this subject. I know one gentleman who has prepared a short paper which embodies the views of myself and our people.

Mr. Frank Wood is then recognized and reads his paper as follows:

A thorough understanding by your committee of conditions in the fishing industry is greatly desired by us, and we gladly offer any information we have to aid you to that end. The frequent appeals to the State for legislation for the protection of the industry is as distasteful and burdensome to us as it can be to the Legislature, and, with a view to avoiding that hereafter, two committees of practical fishermen met at Morehead in 1906 and 1908 and labored earnestly to agree upon a measure that would be acceptable to all; each side made concessions and the recommendations presented are the best obtainable. The fishing industry is of great value to our country, and its maintenance of vital importance, not only because it is one of our chief sources of income, but because the shad and rock furnish a rare and valuable food supply to those who are able to pay high prices for delicacies at a season when they are rare and in best demand, and the herring supplies a good and wholesome food to our own people and our neighbors at prices lower than any other food

of equal value can be bought for. These fish are all migratory and come into our waters to spawn, and here they find at the head of our sounds and rivers ideal conditions; they can not spawn in cold salt water, and must reach the warm fresh water they find here. The legislation we sought for has been to open the inlets and middle of the sounds and rivers, that these migratory fish may reach these waters, where our national government has liberally aided nature in maintaining the supply of shad. The recommendations of the fisherman provide that in all sections the fishing shall be confined to certain distances from the shore and the inlets and middle water be left open and free from obstruction. There was no difficulty in agreeing upon these recommendations, except at a few points in front of the inlets and the narrow parts of Croatan Sound. As can be seen on the charts, old and new, these points are directly in the line of passage of the fish to the spawning grounds and are the most important points to be kept open. A very few nets can close them, and to permit fishing there will be to grant special privileges to a few and practically destroy the industry for the many. To these points we ask your special attention.

When the Legislature decided to postpone fish legislation until your investigation could be made, we did not expect any further consideration would be given to the matter, but a bill was passed, just before the close of the session, without our knowledge or approval, which repealed the enforcing clause of the law and practically nullified all the legislation we have affecting the industry. The forbidden territory is definitely marked by the Vann law, and that law provided that nets set beyond the limits could be removed by the Fish Commissioners. But now it must be proven in a court of justice that the net is beyond the limit (a self-evident fact), and then the offender can be fined only fifty dollars, while the privilege in many cases would be worth thousands of dollars to him.

If this committee can aid in the enforcement of the law until the enforcing clause of the Vann bill can be reinstated, it will be of great service to us.

To further show that our efforts have been for the advancement of the general fishing industry, I will ask you to note that one section of the recommendations curtails our time for fishing, limits our territory, forbids the taking of certain small fish, and forbids taking sturgeon at all for several years. All these recommendations were made by the fishermen, to maintain and replenish the supplies of fish, as it has become evident to us that the business is overdone and we will lose all unless changes are made.

Q. When did the Vann bill go into operation?

A. Two years ago, practically. We had no way of enforcing it until the Fish Commission was created. Since then the law has been enforced. We have what legislation that is of vital importance to us. What we need is the strict enforcement of the laws that are in existence.

Q. You have been speaking of shad; how about the herring?

A. They have not been diminishing as the shad have. The shad are caught by gill nets and not pound nets.

Q. How is the herring caught?

A. They are caught in the upper waters in small nets.

Q. How is it done in Croatan Sound?

A. They do not fish for herring in Croatan Sound. They fish with 5-inch mesh.

Q. I notice in reading the paper you stated that a violator of the law could not be stopped until the fishing season was practically over; that there was no redress until the next term of court?

A. He can go on and fish by simply paying his fine of \$50. We had a law which made it the duty of the Fish Commissioner to remove any net fished in violation of the law. A bill was passed at the recent Legislature just before the close of the session, which practically repealed the Vann bill by omitting the enforcing clause of the law.

Mr. Travis recommends using injunction in cases of this kind, which suggestion was well received by Mr. Pruden.

Q. I understand your idea is that you have plenty of fish legislation, if it were properly enforced, and you had the power of enforcing the laws already enacted?

A. I think the laws have been enforced since we had the Fish Commission.

Q. You think, then, you have sufficient legislation to protect the fish?

A. The Vann bill was satisfactory until practically rendered void. We deal entirely with the migratory fish and the trouble has been the conflict between the different sections, the people from Croatan and others who have fish merchants buying salt-water fish all the season through and distributing them through the State of North Carolina. They do not want to be interfered with and come under the Fish Commission.

Q. Is it your idea that all the fishing interests of North Carolina should come under the jurisdiction of the Fish Commission?

A. I believe it would be beneficial to all sections of the State if the Fish Commissioner himself could study the conditions and advise what is proper for each section.

Q. What per cent of the people of your county are engaged in the fishing industry?

A. Our county is largely fringing on Chowan and Roanoke rivers and Albemarle Sound. Everybody, nearly, is directly or indirectly connected with fishing. There are about 1,171 nets on the Chowan.

Q. Is there a tax on each net?

A. On each pound net, \$1; on each gill net, 10 cents on every hundred yards. We asked the Legislature that they let us bear the burden of the Fish Commission, so that it will not be any tax upon the State at large. We felt that the industry was going down and that we would be compensated for the additional tax.

Q. How would you bear that except by taxation?

A. There is no other way. We suggested this way that we might not burden the other revenue of the State.

Q. Suppose it were possible to induce the general government to join North Carolina and cut a new inlet at Kittyhawk or Nag's Head, or some place along the banks, where the volume of water of Albemarle Sound could escape into the ocean and thereby provide another means of ingress for the shad and other fish. Do you think it would improve conditions in the Albemarle?

A. It would give more salt water. The Roanoke brings down more water than all others combined, and it is due to that that we have the fish at all because they are attracted by the stream of fresh water flowing into the sea. More spawning shad are taken at the Capehart fishery than anywhere else.

Q. Do the spawning shad enter the Cape Fear or Neuse?

A. In more limited quantities.

Q. Do the shad move up and down the coast during the year?

A. It is a question with the Bureau of Fisheries as to where the shad stay the year through.

Q. The benefit of the Vann law, as I understand it, was to keep open the channel at the inlet and on up the sound so that the migratory fish could proceed up to the breeding ground. Now that permits you to fish without any restriction at all within a certain distance of the shore. There is no restriction as to the number of nets that can be put in. What I want to get at is where is the actual breeding ground where the shad deposit their eggs?

A. The Capehart fisheries furnish about 8 per cent of the eggs that go to the hatchery.

Q. Do they spawn a great deal up Chowan River?

A. If the fish is not caught it is apt to go on up Chowan River. If we stop a shad here we are stopping him from his spawning ground. All obstructions put in are more or less stoppage.

Q. Are the spawning grounds fished so closely that they are destroyed while depositing their eggs, making a difference as to where they are caught? Is there any plan by which the amount of fishing done within the actual spawning ground could be limited?

A. You could say that those nets could not be fished so close together.

Q. Do they deposit their eggs out in the middle of the stream, or do they deposit them mostly along the shores?

A. They deposit mostly along the shores. It was thought that the fishermen who obtained fish for the hatchery were fishing in violation of law, but the fishermen had a meeting and consented that the United States force should fish anywhere for fish for the hatchery.

Q. Should not a shad be protected in his bed and if so, what protec-

tion would be practicable and fair to the people engaged in the fishing industries?

A. In our consideration of it we have felt the fishermen should confine themselves to the shores and leave the middle grounds to the fish.

Q. It is your opinion that if these nets are permitted to be fished 2,000 yards from shore still leaves sufficient spawning ground for the shad?

A. I think so.

Q. I understood from your reply to Judge Graham's suggestion of cutting another inlet to be that there would be danger of admitting so much salt water as to render the waters of the sound unfit?

A. They would have to go up higher. In the spring larger volumes of fresh water come down.

Q. Do they require absolutely fresh water in which to breed?

A. They require absolutely fresh water.

Q. Do you have any settled conviction as to whether or not two inlets would probably attract more fish than one?

A. I have not.

Q. Would it be better to protect the inlets you have than to make a new one?

A. I don't know that that would affect our fishing interests.

Q. What is the width of those inlets?

A. Oregon Inlet is about three-fourths of a mile wide.

Q. What is the depth of Oregon Inlet.

A. Oregon about ten feet.

Q. Does it seem to be tending to close now?

A. Yes; four years ago it was half a mile wide.

DR. MOORE.

Mr. Chairman, Gentlemen, and Ladies:—I came here to listen rather than to speak. It seems to me that the questions which this committee has to consider are those which relate very largely to local conditions, and consequently the information should come at first hand from those who have the knowledge of such conditions. We might deal in generalities in connection with the fisheries. The importance of the work of course you all understand. I think the committee undoubtedly already appreciates that there are quite a number of interests involved in this question, that they conflict more or less, that you will not find that the same views are held by men who fish with pound nets as those who fish with seines or stake nets or drift nets. I for one hope those who are engaged in the fisheries by these several methods will state their views fully, so that we can understand just what conditions arise in each locality that is visited by the committee. I hope that all the fishermen with whom we come into contact will appreciate that it is absolutely impossible to please every one. What it will probably be necessary for the committee to do is to compromise the matter; to deal with the circumstances in such a way that it will be of the greatest benefit to the largest number of persons. Just what

this compromise will be, of course, depends very largely upon what the committee discovers in the tour of inspection along the coast and also upon the freedom and directness with which the fishermen along the coast will express their views to the committee. I think, Mr. Chairman, it would be highly inadvisable at this time to attempt to make any general statements regarding the fisheries. I shall be glad to hear from anybody who has anything to say in regard to these matters.

MR. LEARY.

Mr. Chairman:—I have listened with a great deal of interest and pleasure to Mr. Wood's paper. As I understand it, the State has the same jurisdiction that the national government has, which is about three miles outside, and the relative sizes of the bodies of water is very small. Some years ago there was some correspondence in the newspapers about having the nets removed from these inlets and it was thought at that time they headed off the fish and caused them to go out into the ocean again. Of course nature impels and compels the fish to come up into the higher streams and waters to spawn; but, if they are headed off either from the inside or outside, we could not hope to get them up the stream, and it occurs to me that the most important thing is the fact that the fish be able to get up into the higher streams, because it is of so much interest not only to the citizens of Dare County, but to the citizens of every county through which the streams go, and the other citizen is entitled to have his interests protected, and the only way you can protect him is by Mr. Wood's suggestion of keeping the waters open. We have a large expanse of water in the State, but we only have a few small bodies of water and these ought to be protected. These inlets are so small and there are so few of them and the resolution should lie in that direction.

Q. In what position are those nets fished on the outside?

A. As to the length of them or how they are used, perhaps the Commissioner can tell something about it.

Q. Mr. Wood, have you any views in regard to outside fishing?

A. Nothing except what I observed myself a few years ago. I understand there is some fishing on the outside for sturgeon and porpoise. I don't know of any pound nets on this coast.

Mr. Meekins:—There is no fishing on the North Carolina coast north of Ocracoke, except a few sturgeon nets. About ten years ago the blue fish visited our coast twice a year, in September and October, and in April and May, and they then used a net about 125 yards long and 5 1-4 inch mesh, and they would go out and set that net and let it drift and catch the fish, but for the last eight years there has been no such fishing and the only nets now are drift nets. With the exception of two pound nets at Cape Hatteras, for the last two years they have been fishing there but with very little stakes. As a matter of fact, you can not fish pound nets on the North Carolina coast from Ocracoke to the Virginia line.

Q. Practically no fishing on the outside except the large nets for sturgeon?

A. Yes.

Q. When do they stop fishing for sturgeon on the coast?

A. The sturgeon fishing was quite an industry here. For the last several years we have practically had no sturgeon at all. Perhaps his statement in connection with it shows that they were fishing out there and headed the sturgeon off.

Q. Would you advocate an entirely closed season for five years?

A. I can not answer that question.

MR. PRIVOTT.

In view of what has been said or read in the paper prepared by Mr. Wood about the passage of this bill by the last Legislature, I feel that in justice to myself I ought to make some little explanation. There was a committee appointed by the Governor to meet at Morehead last year. That convention met and made recommendations, a copy of which I have in my hands. I told the people all last fall that the only thing I could try to do would be to carry into effect the recommendations of that committee. One of the members from the committee, who was sent from this county, came into my office on Saturday afternoon and went over the Vann bill with me, and said: "Now, there is no change in the Vann bill except to open up one-third of Albemarle Sound and the other sound down to the inlet and to make some little changes down at the inlet," and asked me if I would not do what I could to get the recommendations of that committee enacted into a law. I went to the Legislature and Dr. Pratt had drawn into a bill all the recommendations of that bill. That bill, after it got through the hands of the Fish Committee, Dr. Pratt did not know it himself. Every recommendation that was made for the Legislature was cut out of that bill. It simply left a few sections that were not cut out and applied to a few of the waters that did not affect the lower counties. Knowing that the people of this county wanted the Albemarle Sound opened up; knowing that there had been some complaint last spring about fishing for the hatchery; knowing that they had made a recommendation about that; and knowing that would be important, I took these recommendations out of the Dr. Pratt bill that had not been objected to by the other members of the Legislature and the Fish Committee and put them into a bill, which was passed. Now, the bill that was passed, every word of it, is recommended by that convention at Morehead. Unfortunately, they left off the enforcing clause of the Vann bill. Why, I am sure I don't know. The members of this committee know about it. I never knew at all that the enforcing clause was interfered with. Some had intimated that the people of Dare County had bought me up not to enforce that, and I believe the members of the Legislature know how earnestly I fought for the Dr. Pratt bill.

Judge Graham:—In justice to Mr. Privott I ought to make a statement as Speaker of the House, that there was no man in the Legislature who exhibited greater interest in the welfare of his section of the State than Mr. Privott. I see the Hon. L. L. Smith, former representative from Gates. I would be glad to hear from him.

MR. SMITH.

I am not surprised to hear Judge Graham speak of me as having knowledge on this subject. The people in my county are interested in

the fishing industries, not as a means of making a living, but as an article of food. It is the most wonderful provision of nature almost that I can imagine to look at the map and to think how these waters were distributed and every body of water ought to be protected.

Q. How far up Chowan River do they catch shad?

A. They catch them up to Bennett's Creek.

Q. Have you noticed any diminution in the amount of fish that are caught?

A. The people complain, but it was a little better last spring. At the mouth of these streams the herring go up more than the shad.

Q. Do they catch shad there every year?

A. Yes; some every year, but the supply is diminishing rapidly. Our little town used to be supplied every summer with sturgeon, but for the past five years none have been seen.

CAPTAIN LUPTON.

I would like to give my knowledge of sturgeon fishing. The inlet at Hatteras that you people all suppose is blocked up with sturgeon nets has not a sturgeon net there. There is no fishing down on the coast. They have disappeared in numbers beyond anything that you could expect. A few years ago there were numbers of boats bringing in quantities of sturgeon, but today they have disappeared all along the coast. The sea fishing is done mostly out of the jurisdiction of the State. I don't want you gentlemen to think that my people on the coast are entirely to blame. The scarcity of sturgeon in your water is not due to the fact that the inlets are blocked up, for they are not.

Q. What would be your idea of a law for a closed season of five years?

A. I would not suggest any closed season. There are people who are looking to that for a livelihood just as much as the herring and shad in this sound. When a man can't find a fish in the rivers and along the beaches and he has the nerve to go into the Atlantic and fish, why I say let him have it.

Q. How many people are engaged along the coast in sturgeon fishing?

A. Not more than fifteen.

Q. What was the catch of sturgeon in these waters last spring?

A. Sturgeon fishing is practically nothing in North Carolina.

Q. I notice in the report of the government for 1902 the catch of sturgeon in North Carolina was 134,125 pounds. You say it amounts to practically nothing now? What would be your idea, Mr. Meekins, as to any legislation for the protection of sturgeon fishing in these waters?

A. I think the proper idea would be to restrict the fishing for sturgeon as was recommended by the Morehead Committee.

Q. How many counties were represented at that Convention?

A. It is given in the report.

Q. Why did the recommendation provide for the liberation of sturgeon under five feet and not for those over?

A. It was thought that those over were of much more value and there was a kick against getting those past.

Q. If it was the purpose to protect and increase the sturgeon, why not liberate the large ones which produce the greater abundance of eggs?

A. The effect would be better for increasing the sturgeon. The sturgeon are incidentally-caught and they want the privilege of marketing these while prohibiting a man from going out and fishing specially for sturgeon. The rational plan would be to stop it entirely. The sturgeon that are caught incidentally are caught in pound nets, but when so caught you have to hook him with a harpoon to keep him from tearing the net, and when so caught he will not live.

Dr. Moore:—I would like to inquire of those who are here, who have caught them in the past five years? (Makes count.)

Out of this assembly we have the records of the catch of thirty-five sturgeon in the last five years. Of these eighteen were caught by a man in a regular sturgeon net and two in a pound net. Of these others that were reported, were they caught in pound nets or were they caught in special sturgeon nets?

A. Seventeen sturgeon in five years caught in pound nets. Of course a full roe sturgeon is a pretty valuable fish, but it would appear that the catch in all the pound nets which we probably have represented here is practically insignificant. I would like to have an expression of opinion as to the advisability of having an absolute closed season in the inland waters.

A. This can not be done with those caught in the pound nets.

Q. Would you have any objection to having a closed season for five years?

A. It would be best to remain as it is.

Mr. Wood:—When you fish for sturgeon with sturgeon nets they are reduced and in 1895 it was estimated that there was \$50,000 worth of sturgeon sold here from town to the coast. The last five or six years there has been little fishing for sturgeon in sturgeon nets.

Dr. Moore:—In the fisheries on the Great Lakes I was rather surprised to have the statement made that comparatively few sturgeon had been caught in the pound nets. There was a time on the Great Lakes when the sturgeon were of little value and so many were taken that they hauled them on the beach and could only dispose of them by burning them. The question has arisen in my mind as to whether, if the sturgeon are more abundant, they would not prove destructive.

Mr. Shepard:—There is one other thing; Mr. Privott's recommendation he spoke of affidavit by person. That would be a mistake. It takes too long. I think this would cover it more promptly; that the Fish Commissioner and his deputies are hereby empowered to remove, etc. (Reads from Morehead Convention report.)

RESOLUTION INTRODUCED BY J. C. B. EHRLINGHAUS.

Resolved, That it is the sense of this meeting that the enactment of a law prohibiting the shipping of oysters out of the State, except barrel stock, would be to the best interests of the industry.

CAPTAIN WHITE, A PRACTICAL OYSTERMAN.

Q. What would have been your condition or others if such a law had been passed?

A. When you stop oysters from going out of this State in the shell you kill the whole business. Last season I worked up until the middle of December and oysters that were worth 50 to 60 cents per bushel I sold for 15 and 25 cents. After the 15th of December I caught oysters and carried them to Virginia, and by that means I supported my family and paid license for the privilege of catching oysters. I could not make enough selling oysters at home to pay the State for the privilege of catching oysters. I heard one gentleman this morning suggest making a new inlet at Nag's Head. The greatest thing the State could do for the benefit of the fish and oyster industry would be to deepen the water at Oregon Inlet. If that swash inside the inlet was dredged out it would let more salt water come in, it would give our waters more active water, which is the greatest pullback to our waters. States north of us have the advantage of deep, broad inlets, that floods the water in and keeps it going quick and that carries food to the oysters and supports them. I believe also it would cause more fish to come in our sounds, shad and herring, especially. But, in regard to stopping the oysters from going down the sound, I believe it would be best to stop the oyster business entirely. In other words, it would be dead already when you stop them from going out of the sound. We only have a few packing houses in this State, and when we have no boats coming to take the oysters out, the packing houses are not justified in working.

Q. Where were the oysters shipped from Belhaven? Did they go to the canneries?

A. The oysters are shipped out in buckets. Most of them were used in the interior part of this State last season. Seasons heretofore they have shipped oysters to Baltimore and Norfolk.

Afternoon Session.

Q. What do you think would be the best law to pass in order to protect the fish and thereby increase the number of fish?

A. One thing I think is a great damage and that is the people fishing drift nets clean across the sound. For the last five or six years we have not been catching many shad. This last gone year it has been better, but nothing like it used to be, and we would be mighty glad if it could be kept open one-third of the way from the inlet, giving everybody the privilege to fish on each side, but keep one-third open. In regard to the sturgeon nets, I think everybody would be perfectly willing to have the 20 yard nets, but the long drift nets make a total sweep as they go.

Q. If you were to fish the short gill nets now would you catch anything?

A. If the length of the nets were cut down it would amount to practical prohibition of fishing.

Q. Suppose you were permitted to fish small nets, don't you think you would catch any sturgeon for a while? Some gentleman said you could get rid of them without harpooning them.

A. That is not true.

Q. Is the spawning season of the shad and sturgeon the same?

A. No.

Q. Where do the sturgeon spawn?

A. I do not know where they spawn here, but they did spawn on gravelly bottoms in the rivers.

Q. How would it do to pass a law prohibiting the fishing for sturgeon after the shad nets are taken out?

A. I don't know.

Q. Do you get many small sturgeon in your pounds?

A. No great quantity.

Judge Graham:—I would like very much to hear from Mr. Capehart. (Gone to Hertford.) I would like to ask Captain Bond to give us his views.

CAPTAIN BOND.

I know one thing: We had better open up the sound; something is the matter below.

Q. Do you think that is due to the obstruction in the inlets?

A. Yes, and another thing is that the facilities are greater for catching fish than ever before.

Q. How much has been the increase in dutch nets within the past five years?

A. I don't think any, taking it as a whole.

Q. Was there an increase in the taking of eggs at the hatchery begun after the Vann law was enacted?

A. Yes.

Q. Have there been more violations of the law in regard to keeping the open-way for the passage of fish from the inlets since the enforcing provision of the Vann bill was left out?

A. It was so late in the season that it did not affect us this year.

CAPTAIN LUPTON.

We have had some nets removed in the lower sounds; some in Chowan river, but the people as a whole here, as well as everywhere else, when they realize they have got to do right they are really glad to do it. But now to take out that clause out of the Vann bill and have me sent out by my Chief to enforce the law, you had just as well lower my boat and say, Captain, go to the West Indies. Now, the only thing in my judgment that the Committee can do as regards to fishing in that part of the sound covered by the Fish Commission is to reinstate that, and as for the Vann bill, I agree with my Chief, that it was the wisest bill ever passed. The late law that was passed I don't know nor never found out who was the author of the bill. What we want, gentlemen, is to give us power to enforce the law. We have law enough; enforcement is what we need. That class of fishermen found by our Saviour on Galilee has long since passed in their checks, and you will find on our sounds our fishermen just fishing for fish.

Now, gentlemen, I must recommend no change, only to reinstate that enforcing clause embodied in the Vann bill and enable us to do our duty.

Q. What suggestions have you to make as to Roanoke Sound?

A. Well, that river or that sound is closed up for the reason that there is no law by which we can move or take any nets from that sound, and for two years only 30 feet passway has been left on the main thoroughfare. At all seasons of the year, and every spring there is a run of shad through that sound. The biggest haul of fish I know of this year was by Mr. Joe Hayman and was 1,900 fish at one time. The bulk of those was caught from nets stretching across Roanoke Sound.

Q. What would be your idea of leaving a certain portion of all the streams, sounds, and rivers unobstructed by any kind of net?

A. Is that in the Vann bill?

Q. I don't think it is. I think it was recommended at Morehead City.

Chairman:—I see Mr. Woodard and would like to hear from him.

MR. WOODARD.

I think the sound should be partly left open all the way. The Vann bill as we had it originally was all we wanted. From the inlets clear up to the heads of the rivers should have a free channel left open.

Q. Don't you think that some restriction should apply to Roanoke Sound?

A. First, the inlets should be protected, and this should apply to all the streams all the way up.

Chairman:—Are there any further remarks to be made? Any information that you desire?

A. I think all the inlets inside and outside ought to be protected. There has been some report that it was recommended that all the set nets and pound nets should be taken out by the 5th of April. If that law should pass in our county, Tyrrell, it would do us a harm. We want the time extended beyond the 5th of May.

Q. Was there any increase in the catch of fish in Tyrrell County this year?

A. Yes; a good increase. Last year it was some better than this year for blue fish and shad. Shad fell right smart below this year.

Q. Was there any increase in herring?

A. I think they increased some, too.

Q. What effect do you think the building of this bridge is going to have upon the fish?

A. I have always thought it would ruin the shad fishing.

Q. What are your reasons?

A. My reason is, where it crosses at Tunis, before the building of the bridge the shad went beyond Tunis, but after the bridge crossed the shad do not go by.

Dr. Moore:—I don't believe the bridge will have a very serious effect unless rubbish will lodge against the piling. In that case it would possibly deter the shad from passing up. I don't believe from what I have seen of bridges in other places that it will have a very serious effect. Local conditions may cause a lodging of materials there.

Q. Don't you think fishermen ought to be prevented from fishing near the bridge?

A. I think it would be a good idea.

Q. What is the longest span of the bridge?

A. One hundred feet on each side. Distance across, five or six miles.

Q. Would it not be very much better for the fishing interests if they had two or three of those pivot draws?

A. I think it would, but those can not be had. We have one or two spans on each and they draw about 30 feet.

Q. What effect would the vibrations of the bridge have upon the shad fishing?

Dr. Moore:—I have never made any observations on the shad, but in the case of sea-herring such questions as that would have very little effect. I believe it is equally as shy as a shad and as liable to be scared away by unusual noises. I found in the case of the herring, vibrations, such as the rumbling of vehicles over wooden bridges, explosions, both from gas and from blasts, and similar noises, had very little effect; that the fish would temporarily shy away from the source of the noise, but would speedily recover their confidence and return. It is my opinion, and only a mere opinion, that the bridge across the sound, unless it becomes choked up by means of travel, would not have a very serious effect upon the run of shad above the bridge. Of course, the matter is one that can only really be determined by experience, and that is yet to come.

Q. Could you give an explanation of why shad have not been caught above the bridge on Chowan river?

A. I have not enough knowledge of local conditions to say, and of course there are usually a number of factors entering into a matter of that kind and without a very close examination into the conditions it would be rather rash to venture an opinion.

Q. Doctor, though they may not be frightened, the shad is a very timid fish; he would be frightened by the shadows and deterred from passing through on that account. Would he not?

A. I think not. You have a shad entering pound nets, where you have shadows; but this depends largely on the location of the pounds. If the water is discolored as it is now they would not.

A Fisherman:—The bigger the mesh of the pound the less shad you catch, and you catch better in clear water than when the water is muddy.

Dr. Moore:—I have seen fish swim around in an enclosure where there were holes through which you could pass barrels, and yet a herring less than a foot in length would swim past that opening without attempting to go through. On the other hand they would lead immediately into the brush weir. The weir is essentially a pound net with the mouth opening the whole depth of the water, but, instead of being constructed of netting it is made of brush and eventually that net will become covered over with marine vegetation and will make practically a closed fence. Of course, on such a structure the bright daylight throws a very strong shadow and the water in those regions is very clear and the shadows would be very perceptible.

A Fisherman:—The lighter the net the more open it is, the more shad it will catch.

Q. Regarding the bridge, do you know the distance between the benches?

A. Twelve foot centres here. At Tunis they are closer together. The plan provides that they should be 12 feet from centre to centre.

Q. Are there any shad caught above the bridge at Tunis?

A *Fisherman*.—I was down there on two occasions this spring and there were a lot of drift nets set on this side of the bridge. I asked why they did not set on the other side, and they said that they could not catch any on the other side.

Mr. Vann.—I don't know that this is practical, because the bridge is there, but my opinion and experience differs widely from Mr. Smith's and Mr. Pruden's. I feel now, as then, that it would be very injurious to the fishing industry in this section. I inquired at Tunis what effect the bridge would have upon the shad fishing; they thought that it would only be an accidental shad that would get through at all. One and two shad at a haul was what they caught, and sometimes none. They said that fishing was nothing like what it had been before the bridge was constructed. I asked, especially, why the drift-net people did not fish their nets between Tunis and Winton. They said it was no use to try to catch fish above the bridge with a drift net.

Mr. Privott.—It seems to me the Committee wants to decide whether the people should be restricted in fishing a certain distance from the bridge. From Mr. Currie's question, I think that the Committee wants to know if there should be any restriction near the bridge.

Mr. Woodard.—In my opinion no nets should be fished within a mile of each side of the bridge.

Mr. Hoffer.—We are interested, to a certain extent, in Gates County, but unless protection is afforded us lower down we will be left out entirely. I think, in connection with the work of the Fish Commission in the enforcement of the Vann law, that there should be some definite location as to the mouth of the Chowan river and its tributaries. There is some doubt as to the true mouth of the Chowan river, and you will become acquainted later on as to the advantages and disadvantages of not knowing the mouth of that river.

Chairman.—Judge Graham has a resolution he wants to introduce.

RESOLUTION.

Resolved, That the thanks of this committee be tendered to Mr. George W. Goodwin for the use of his launch, which he so courteously placed at our disposal to visit the U. S. Fish Hatchery this morning.

Mr. Pruden.—What do you think would be the propriety of leaving some of the counties out?

A. It is merely a question of whether some particular local matter shall be applied to a particular county. There may be cases in which it might be just to except a certain county. As to the legality of it I have no doubt in the world as to the legality of these laws in respect to the different counties.

MR. VANN.

I think the Committee, as well as everybody who has heard what has been said today, feels that the Fish Commission has been efficacious in protecting and carrying out the laws for promulgating the fishing interests, and that is the important feature of this matter. The original bill has run the gantlet. For the next season we will be without any enforcing clause, by an unfortunate oversight when it was left out of the bill drawn up by Mr. Privott. I would like for this Committee, if it can do so, to pass some resolution to recommend that the Governor call an extra court in any county where the Fish Commissioner would be powerless to carry out the law, on account of the bill as it now is: I say for this season, because we don't know what may happen. There ought to be some way by which the people could feel that they would be protected if the law is violated.

Q. What do you think of the jurisdiction of the Fish Commission being extended to all the counties of the State?

A. I think it should be done.

Q. What do you think of the advisability of consolidating the oyster and fish commissions? They are both similar and still they are administered by entirely different departments; would it not be more economical?

A. I am uninformed as to the oyster interests, and can not say. There are certain people who believe in uniting them, and others do not. There was a sentiment abroad that the Oyster Commissioner was not as efficient as he should have been; and, perhaps, that had as much as anything to do with dividing the two Commissions. There seemed to be some feeling between the two interests. It is singular to say that those fishermen who have oyster and fishing interests together do not unite with us in our efforts to protect the fish.

Mr. Meekins:—Not so much. So far as my experience goes, Dare, at the one end, and Chowan, at the other, have about come together.

Fisherman from Tyrrell County:—Some counties pay their taxes and others do not. That is unfair and unjust that one set of fishermen should pay and others should not. In the end we have to pay that tax in addition to the other taxes. I think it would be a good thing to let the tax come from the general treasury of North Carolina. Five counties do not pay any taxes.

Judge Graham.:—This has certainly been a very interesting, and, I hope, a very profitable day. Our committee has very greatly enjoyed being here. I, for one, am very favorably impressed with the people who have been here today. And I want to introduce a resolution that the thanks of the committee are hereby tendered to the people from Gates, Chowan, Tyrrell, and other counties who are here today, for giving information to the committee.

Resolution passed.

MANTEO MEETING.

JULY 9, 1909.

Meeting called to order by Chairman.

Mr. Meekins called on Mr. Crisp, who, while not a fisherman himself, has been among them long enough to have practical ideas.

MR. CRISP.

It is true I have lived in this county over thirteen years, and its principal occupation is its fishing industry; but at the same time I am not familiar with the methods of catching fish. I have had some experience in the legal questions presented to our court of last resort by Mr. Vann that we thought was unconstitutional and undertook to get the Supreme Court to say so. The purposes of that bill are good. There are a good many things in regard to the different interests in the fishing section. I think Mr. Vann bit off a little more than he could attend to in this bill. I think that section of the Vann bill which provides for the confiscation of the property of the citizen is in violation of the property rights of the citizen as contained in the Constitution. I think that is one of the evil features of the bill. It suspends the action of the court in trying property rights and puts too much power in the hands of the individual, and the complaints in that case provided that that proceeding is to be insisted upon. I think a careful study of the present Vann fish bill in some of these respects will develop the fact that it is based upon a misconception of some of the evils it was intended to correct. In our waters the fish are not on their spawning ground, but on their way there. They have business and they are going to attend to that business. They go to the head waters of Albemarle and Croatan sounds; it is necessary that the passage way should be kept open. This is conceded by all. At the same time it is not necessary, in order to keep that passage way open, that all the privileges of our people should be curtailed. I don't think that is the purpose of the Vann bill, but I think that by reason of a misconception it is so construed. In other words, they apply the knowledge that the shad has gained up there on their spawning grounds to our waters when he is on his way there, and the rule will not apply. There is no doubt to my mind, without having given to it the scientific study of the experts or without having a practical knowledge, that the supply of fish has decreased. And there is no doubt but that destructive methods have much to do with it; but we have already restricted ourselves. At one time it was seriously reported that we shut the inlets by putting nets across the inlets. But a little study will

show that men setting nets across the channel would have them carried out to sea. It is impossible to absolutely close the sounds, and it is nearly impossible to stop the fish when he is on his way to his spawning grounds. I have always contended that the only fish stopped in our waters are those caught in the nets. With a reasonable channel left open there is no doubt but that the fish will go into the interior waters. I think a large percentage of the diminution of the quantity of fish should be attributed to destructive methods of catching them on their spawning grounds, catching them in pound nets in the deeper waters up the sound. The spawn deposited under these conditions will not mature. I take it that it is impossible but that there should be legislation connected with the fishing interests; I take it that the present legislation is unsatisfactory, that it works inequalities, or else there would not be efforts put forth to better conditions. I would make this suggestion: that geographically we are the Ishmaelites of the fishing industry. The fish, to get to their spawning waters of the interior, must pass through our county. In different localities they fish different materials. Up the river, the head waters of the Albemarle Sound, and in our waters the interests are to some extent complicated, and in discussing this question before the legislative bodies we are the Ishmaelites because it seems that the hands of all the other fishermen are against us, and that our welfare and our interests to some extent conflict with theirs. I take it that your purpose is to consider what is justice to our people and others and to reconcile these inequalities.

Q. What method of punishment would you suggest for a fellow who has violated the law and fishes in prohibited territory? Now, I understand in the case that you spoke of that it is unconstitutional to confiscate the nets. What would you suggest as to the remedy?

A. I would suggest the same punishment to all violations of law and in the same way. It was good enough for our fathers when they gave us laws and provided for offenses in the criminal law, and it seems to be good enough in all parts of the world except for the Dare County fishermen.

Q. Is it only for Dare County?

A. It applies only to Dare County.

Q. Is it not general?

A. There is a big majority against us in the territory connected with the fishing interests.

Q. The reason I asked the question was that I heard it discussed at Edenton and some one advanced the idea that if the authorities did not have the right to at least take up the nets, that with the punishment prescribed, say \$50 (and he would not give up his season's fishing for \$50 unless the authorities had some way of stopping him), he could fish the whole season and not feel such a small fine.

A. The difference between stopping his operations in fishing in violation of the law and taking his net out of water, and advertising and selling it, and putting the money into school funds is a good deal. These

people actually mortgage their homes for money to get fishing material with. So far as the punishment is concerned, I don't recall what it is. That could be obviated very easily by increasing the punishment. If the measure is not sufficient to deter them, why make the measure bigger. One of the inequalities of this bill, and the one that we justly complained of at the time, is the fact that there is absolutely no way to determine whether he is fishing in violation of the law. He is limited by yards. The only way to determine whether he is fishing in prohibited territory or unlawfully is by one individual, the Fish Commissioner. It is almost impossible to determine distances on water. A man may, in perfect good faith, put hundreds of dollars worth of material in the waters and extend them to a place he thinks he has a right to go. The Fish Commissioner, to the best of his ability, has made his survey, and the United States authorities have coöperated with him in making his survey.

Q. Can he not make an actual measurement from the shore?

A. They are a difficult matter. The difficulty is in establishing permanent marks in the waters, by which we can be governed, unless it is by fixing marks on the shore. We can locate the distances by a system of triangulation, but there should be a means of establishing more permanent buoys than has so far been practical.

Q. Since this survey has been made has there been much complaint because of persons violating the law and going upon territory where they are not permitted to fish?

A. I have heard nothing except in a general way. I have heard some complaint of different individuals; I have never heard any of the details.

Q. Have there been any prosecutions in the past year or two in regard to it?

A. Yes, there have been some prosecutions in our justice's court. They did not arise because of the Vann bill, but on another question entirely. The question that arose was as to where Croatan ceases to be Croatan and becomes Pamlico.

Q. Can you give us any information as to the relative catch of fish in the past two years and what it was prior to that time?

A. I think the fishing conditions are getting worse all the time.

Q. You think the catch was smaller this year?

A. I think so. There are some individuals who make very good catches, but as a general rule fishing conditions have grown materially worse. When I came to this county they used gill nets and the shipments of fish were much larger than they have been for the past four or five years.

Q. Was that so this past season?

A. I don't know that I can answer that with any great degree of intelligence. I suggest one of the causes of decrease in the quantity of fish itself. I think it is attributable largely to catching them on their spawning grounds up the sounds. I think that if the time will ever come when the United States, as a whole, will prohibit, absolutely, the using of pound nets for catching fish, the fishing interests will improve. Of course it will be useless for one locality to prohibit the using of pound nets when others engage in it.

Q. To what do you attribute that decrease?

A. I think these nets catch up large quantities of fish that are not marketable, fish that would grow to be marketable afterwards; I think fishing in deep water a much larger number of fish get in these nets and spawn in them, and that the spawn does not mature. There has been a large decrease in the fish in this locality. Last year I had some occasion to investigate some comparative statements as to the shipping from the agents of the freight lines, and estimated the number of boats that were taking fish to Elizabeth City, and I found there had been a great decrease. My first acquaintance with the fishing industry in this county was in 1896 and, I believe in 1900, there was a report of the United States Fish Commissioner that was based upon the fishing operations of 1897 and at that time (and I went over that report very carefully)—at that time the operation of the gill nets in this section was very different from what it is now, much fewer pound nets being fished. And I don't think that any one will controvert the statement that, taken as a whole in the sound section, there has been a falling off of the fishing interests of this section. It is in proportion to the increase of the pound nets. The enlarging of the meshes of the net will have some advantage. I am not well enough acquainted with them to say just what.

Q. Why is that more destructive than the other methods?

A. They are migratory fish.

Q. I understand your remarks to relate especially to the shad. Have you ever seen or heard of any large quantity of shad or herring being taken in pound nets?

A. They catch large quantities of herring in pound nets in all sections, I suppose.

Q. Did I understand you to say that your general objection to the pound net was that it killed the little fish?

A. I don't know.

Q. Do you think that the pound net interferes more with the spawning operations than any other net that is used?

A. I don't know that I could answer that. I have never seen but one net fished and that was a bluefish net at Nag's Head, on Sunday.

Q. Do you think that the pound net causes the fish to turn back and not continue up the streams?

A. That was one of the objections; that, and the interference with the natural spawning operations of the fish.

Q. Do any of the fish that get into these nets ever get out?

A. There are quantities of fish that get into these nets and work their way out of them.

Q. Do you think the pound net has any more deleterious effect in the sound than in the rivers?

A. I don't think it has as much, because the sound sweeps them on toward their spawning grounds, but the rivers are operated in a limited territory.

Q. You stated that the Vann bill was based on the observations on fish higher up in the waters of the sound and that these observations were not a criterion for regulating the fisheries in this region. Can you give us some idea of why this is true?

A. I was advancing this idea, and I was only speaking for myself and not with a practical knowledge; I supposed, from the place of residence of its author and the influence that had it introduced, that it was based on the habits of shad and herring in that locality, at the headwaters of Albemarle Sound and along the rivers emptying into the waters of Albemarle Sound. Necessarily there is a difference in the fish's nature when it is on its way to the spawning ground and after it abides. It is strictly on business when it goes into these inlets, and it is headed for the waters of Albemarle Sound; it takes something more than a fish net to turn it back and make it go to sea. When it gets to these upper waters it has arrived at its destination. It is much more apt to get into the pound nets in circling round than when on the run and there are more chances of getting a larger number in the pound nets. The same spirit that animates the fish when it is in our waters is not found when he is under different circumstances and on his spawning grounds. You have to scare him very bad to make him go back to the Atlantic Ocean when he is on his way to see Mr. Vann.

Q. You mean the destructive means of catching fish in these upper waters is tending to decrease the spawn hatched? Are these means of catching fish different from what they were ten or fifteen years ago?

A. I suppose not. I suppose it was owing to the increased number of nets. I should say these people have a better chance to catch up there than we have here.

Q. Do you think that the seine is the most destructive means of catching fish? I believe there is only one seine in operation in the State now.

A. I should take it to be so. It operates in a more limited area;

they only sweep the shore for a mile or so along the shore. Its destructive effects are limited to the part operated by the seine; that is, where a man would operate his seine on the spawning ground.

Q. Do you think the diminution of the fish is attributable to the seine?

A. Not exclusively. It is one of the causes. I think the destructive appliances for catching fish is causing a diminution of fish everywhere. Of course it is natural that there should be a decrease in the quantity of fish if the pound net is a better appliance for catching fish than the gill net. When you take a detour, extending for a mile or two in the sound, a fish coming along has a bare chance to get out unless he works around. That is one difference in the fish net used in our waters and those of Albemarle Sound. When he strikes that net or lead, if he gets around the first pocket he strikes another that leads him, and the chances are pretty good that he will get caught. It is only those that stray off that get to their spawning grounds. There is a difference in the ease and facility with which the fish can be caught under these different conditions.

Q. Speaking of the decrease of fish, do your remarks apply only to shad or to all classes of fish?

A. I have no means of knowing anything except about those from this county. I can only judge from the financial condition of the county now, as compared with what it was thirteen years ago, and the gradual changes in the financial condition of the people.

Q. How do you think the catch of herring is? Is that catch as large as it formerly was?

A. I don't think so.

Q. You think it has decreased?

A. All kinds have decreased. The fishing here has been a practical failure for the last three or four years. There has been no successful fishing since 1897. In 1902 there was very good fishing, but there have been intervals of two or three years of comparative failures.

Q. Does the depth of the bar change from year to year and is it deeper at one time than another?

A. I don't know.

Q. Do you think the depth of the water on the bar on the inlet has anything to do with the fish that come in?

A. A large number of the fish that come up here come in from Beaufort, Hatteras, New, and Oregon inlets. I don't know whether the depth of these has anything to do with it or not.

Q. How long has the pound net been used down here?

A. I don't know. The first I saw of them was back in 1892. When I first came few were here in the upper portion of the county.

Q. Is the use of these nets increasing or decreasing?

A. Increasing.

Q. How long have they been increasing?

A. I think there has been a gradual increase in the quantity used. I know there has been a gradual increase in the territory in which they are used.

Q. Is there any difference in the number of persons engaged in fishing in this county now and in the number engaged in it ten years ago? Has the number increased or decreased?

A. I should say it is practically about the same. The people from adjoining counties come in and fish during the fishing season.

Q. Nearly everybody in the county is engaged in fishing?

A. There has been an increase only in proportion to the increase in population. The people that come from other counties and fish in our waters have caused an increase in quantity. There has been a natural increase in population and it is the source of support of the people in this county.

Q. You think that, as the population has increased, the number of people engaged in fishing has increased, and the individual catch of fish is smaller than it formerly was?

A. I think the quantity of fish shipped from the county is decreasing all the time. I have never heard any one say, who was in a position to know, but am only judging from the financial results; and, a year ago I got an opportunity at Roanoke Island to see a freight agent's report.

Q. Can you give us any suggestions whereby you think the interests of the fishing industry can be improved here?

A. I don't think that I can. I don't know that I am sufficiently informed on the practical workings of the fish industry to be able to make any practical suggestions that would be of value in detail. I should judge, in a general way, there ought to be a general revision (now this suggestion comes from a concensus of opinions) of the Vann Fish Bill, so as to make it practically conformable to the recommendations made by the Convention of Fishermen that was held at Morehead and was, as I understand, a compromise measure of the conflicting interests of the various sections in the fishing industry. As to exactly where lines should run I would say that the people of this county have a right to expect that in establishing lines of prohibited territory that the sounds might be kept open, but not to prohibit the use of any more of the public waters of our people than is necessary to give a chance for the passage of the fish to the interior sections. Our contention is that the main body of the fish pursue the channels and the channels are not obstructed and can not be. It may be that there have been some nets set in places

that are objectionable. In adjusting these lines it has been contended that there is some territory now prohibited that could be left open to the public engaged in fishing. The lines ought to be marked with something fixed and immovable.

Q. What, in your opinion, has been the effect of the establishment of the fish hatchery at Edenton upon the quantity of fish that come through these waters?

A. I should think it would have a tendency to increase the supply, but I don't suppose it has been sufficient to take the place of the fish that were once here.

Q. You stated that your county was the Ishmaelite of the counties; will you please state how that is that you should be the Ishmaelite of all the waters of North Carolina? What is the reason that your hand is against every other county and every other county's hand against yours?

A. We want to catch as many fish as stray into the shores of our waters, and we want them to catch what they can, but we claim they want to catch them all.

Q. Then you think the Vann bill is a good bill in its intention and that it should be changed in some of its details?

A. Yes; there are practically some little features that might be changed.

Q. This is an acknowledgment that you were wrong in opposing that bill in toto.

A. We did not oppose it in toto; we offered a compromise bill that was intended to accomplish the same purposes. What I am protesting against today is the idea that we down here are blocking up the sound, so that the fish can not get by.

Q. Is it the opinion in Dare County that too wide an area is left open in the sound?

A. Opinions vary. It is the opinion of those above Pamlico Sound that they would like to see it as wide as possible.

Q. In regard to that locality, what is your idea as to the proportion of the sound that ought to be prohibited?

A. I don't know that I could give an intelligent answer to that, but I should think that it would differ in a narrow sound. If you give one-fifth in Pamlico, at places thirty miles wide, the width ought to vary with the width of the sound. I believe the present law is one-fifth of Croatan, leaving three-fifths open. I have no objection to that law.

Q. What do you think would be the best proportion?

A. The distance in the sound to which the nets are extended should be different in proportion to the width of the sound. Due regard should be taken in each locality to keep open the channel for commerce and a

reasonable passage for fish. Notwithstanding that I claim that there is a diminution of the quantity of fish in existence, I think and have thought a very small percentage of the fish that come into the waters are caught.

Q. Do you think that this fish law ought to be applicable to all the counties in the State and not just to those in this northeastern section?

A. Yes. I don't see how it is possible to devise machinery for the protection of fish unless you make it apply to all the waters.

Q. Do those people who are in the unprotected waters come over in Dare County and fish?

A. I think they do, to some extent.

Q. Your county, I believe, was interested in oysters to quite an extent. Have you any suggestions to make in regard to an oyster law that would be more efficient and make that industry pay for itself and not be a tax on the people?

A. No. I have never given the oyster industry any thought whatever. Not much oystering done for the last few years. There has been a decrease in the supply, due, I should say, to excessive dredging. I would say that they have already taken some wise steps in regard to the oyster industry. It is true that people have not been educated yet up to the effect of that. It takes several years to test laws of that kind. I think these are steps in the right direction and will give the oyster a chance. There are some beds of oysters that I think would be profitable if they could be dredged and broken up and scattered.

Q. I believe the statistics show that, in 1905, \$27,000 were received by the State from the oyster licenses, and last year not more than \$10,000. Can you give any reason why there should be such a terrible decrease?

A. I don't know. I am not familiar with the oyster industry and have not kept up with the recent oyster legislation. I don't know the recent statutes. I would say: enforcement of the law, protecting the plants from the excessive use of dredges and scrapes until the oysters have had time to recuperate. Assuming that the present law has provided for the proper limitation of that, the only thing would be to see the law enforced.

Q. Do you think that there are many persons engaged in carrying oysters unlawfully from these waters to Virginia?

A. No.

Q. Do they go that way to Elizabeth City?

A. They would have to pass by Elizabeth City, and I think that provision for inspection would prohibit the taking of them. The oyster section of this county is principally below here.

MR. DANIELS.

Q. Will you give us your idea of any grievances that you have or your views as to how the fishing can be improved?

A. I think if our inlets could be made deeper it might help. Ten or fifteen years ago, when we were catching plenty of shad and herring here, there were eighteen to twenty feet of water at Oregon Inlet. I don't know what was at New Inlet. I think the inlets being filled up has lots to do with the fish not coming into the waters. I believe we have just as many shad now as we ever had, not in these waters, however, because of the filling up of the inlets. That New Inlet was a great inlet for shad. I guess now a man could nearly wade across. A fish does not come in an inlet that a man can wade across.

Q. When they come in the inlet do they go through the deeper waters of the channel, or do they go through the shoals?

A. They go up the channel.

Q. The fish in the neighborhood of these inlets is on the shoals?

A. They follow the channel as far as they can.

Q. Do they fish in these channels?

A. It is impossible for them to fish in these channels.

Q. Simply for the mechanical reason that the nets can't be hauled through?

A. They can not haul the nets in the channels.

Q. Do you think that if the channels were dredged and deepened they would improve?

A. I think if we had more channels and deeper ones we would have more fish.

Q. Suppose the general government can be induced to make an inlet from Kitty Hawk, and the water from Croatan Sound might be diked across, do you think the volume of water coming through Albemarle Sound would be sufficient to keep the inlet open? If you had a pretty big inlet at that point what would be the effect on the fish and oyster industries of this State?

A. I think it would have a very great effect; there would be a great increase of the oysters and a great increase of salt water fish. I think our shoals now, where we have any, would be covered with ducks and wild fowl.

Q. Did you know there was formerly an old inlet at Nag's Head?

A. I could not answer that question. I suppose there was. A man can go up Currituck Sound and see where there used to be oysters, the shells are there, but the oysters are gone.

Q. How many years since that inlet was closed?

A. I don't know.

Q. Is there a tradition in the country that there was a time when oysters were more abundant than they are now?

A. I think so. That would have to be periodically dredged to keep it open.

Q. How long since the water of Oregon and New inlets began to become more shallow than it is now?

A. I can remember when there was from eighteen to twenty feet of water on the bar at the shallowest place; I should judge there might be twelve feet now at Oregon Inlet.

Q. What is the width of New Inlet?

A. Four miles.

Q. There are only two openings from these waters to the ocean?

A. Yes. There are two inlets that the fish can get in our waters.

Q. What is the average width of the banks from Hatteras to the Virginia line?

A. About a mile; in many places it is much narrower and in some places wider.

Q. What do you think concerning the Vann law upon the fishing interests of the State?

A. It is hard upon our people in some ways. It has driven our people ten miles down the sound to fish their pound nets, and many have had to give up fishing for lack of boats. We think ten miles is too far for the fishermen to have to go down to set their nets.

Q. You speak of that ten miles below the lighthouse on Roanoke marshes?

A. Yes.

Q. What provision in the Vann bill?

A. That there should be no pound nets within ten miles.

Q. They still fish along there on both sides?

A. Yes. It looked as if ten miles was too far.

Q. Do you think there ought to be any fishing in Roanoke Sound, between Broad Creek and Ballast Point, where the inlet is so narrow?

A. I don't think that it makes any difference whether there is any fishing there or not; they don't have many fish.

Q. The fish all seem to go on the Croatan side?

A. Most of the fish go on the Croatan side.

Q. Can you give any reason for that?

A. The only reason I can give is that they have deeper water.

Q. There is some fishing down at the lower end of Roanoke Island, over on the Roanoke side?

A. Yes; some fishing there.

Q. What success do they meet with?

A. Some years they do fairly well and others not, owing to the condition of the winds and weather.

Q. Are these nets so set that the fish can not come up Roanoke Sound?

A. I could not tell you about that; I have not been there when the nets have been set.

Q. Can you give any suggestions as to what sort of law we could pass that would be of benefit to the fishing industry down here?

A. If the laws were repealed and no others made I think we would be better off than we are now.*

Q. The fisherman, in order to catch any shad, must go as far as Oregon Inlet?

A. Yes. They go to catch them up above. This is very much below Oregon Inlet. I believe we have just as many fish in our waters, and I have had thirty-two years experience, but I don't think they come up in our inland waters because the inlets are shallow. I think that that is the great trouble. I think they go on up the beach and go in some of the deeper inlets.

Q. Where do you think they go? In the waters of the Chesapeake there is said to be less fish than there have been in years.

A. Perhaps some go up there. I do know that when we had deep inlets we had plenty of shad.

Q. Do you think a greater quantity of salt water would tend to make the shad go farther up in the fresh waters?

A. Indeed I do. He would go on until he found the fresh water.

Q. How would that affect your fishing industry? Would the only fish you catch be those as they go up the rivers? Don't they linger here?

A. No; they don't linger here, when he strikes our inlets he is on his way to his spawning grounds. One day we will hear of a man having good fishing down below and the next day we will hear of good fishing farther up.

Q. Have you any knowledge of the character and method of fishing carried on by those who fish on the spawning grounds farther up the sounds?

A. I think that that's a part of the grounds that ought to be left open. I think that if there's anything destroying the fish that is the place they are destroyed. That is the only place where the fish is lingering around, and he is more apt to be caught there than if he were hurrying through.

Q. Have you any definite information as to what portion of the spawning ground is unfished?

A. No, I have not.

Q. Have you any definite knowledge as to what character of water they spawn in?

A. I have not.

Q. Do you know any one here who has knowledge of these matters out in the sound or near to the shore?

A. I don't know. I expect Senator Vann could tell you. We have been told by the fish hatchery that it was in from six to eight feet of water.

Q. What do you think of the sturgeon fishing? Has the catch increased or decreased in the past five years?

A. It is about the same as it was. It is not very profitable here.

Q. How far out do they fish from the inlet?

A. I was never out where they fished.

Mr. Holman:—They generally set them two or three miles.

Q. According to the statistics, published by the National Government, there were 57,000 sturgeon caught in North Carolina in 1902?

A. They were caught along this coast on the outside. The only sturgeon caught in this sound are caught in the pound nets. Occasionally you will hear of a man catching a sturgeon in a pound net, but that's seldom.

Q. Are they caught in pound nets on the outside?

A. No.

Q. How far out are these sturgeon nets set on the outside?

A. I should say the most of them are set four miles.

Q. How was your catch of herring this year, as compared with that of several years ago?

A. Very few of our people fish that kind. Most of our people fish what we call a 4 1-2 inch net, and herring go through that. You see we turn all the small shad through; we don't want to catch them.

Q. Will they go through those nets?

A. Yes; they will go through if the herring go through.

Q. Some years back 1,000,000 pounds of herring were caught in Dare County. Do you think the catch this spring amounted to as much as this?

A. No. Then we were fishing a small mesh net which will catch the herring. I don't know of a dozen small mesh nets being fished over the section where I fish.

Q. Why is it they don't try to catch the herring?

A. They find it more profitable to let them go. And they think they can handle the nets much better just to catch the shad.

Q. How early in the year do you commence fishing for shad?

A. The first of February.

Q. How long does the shad season continue with you?

A. Until about the first of May.

Q. Is it kept up until the 10th of May?

A. Yes; until about the 10th of May. Very few are caught the first of February, but the fishermen begin to put their nets in and that is kept up until the first or tenth of May.

Q. What is the difference in time when you commence to catch them and the time they begin in Chowan River?

A. Sometimes we hear of their catching up there before we do. We think that fish pass us before we put our nets in.

Q. Do you think it would be wise to have any legislation in regard to the time to commence fishing?

A. It doesn't make any difference about that. I do think it would be well to have a time for all nets to be stopped.

Q. What dates would you suggest for that?

A. I should say, about the first of May have all the nets out and give lots of fish a chance to go up. We say the 10th of May they commence taking out, but there's plenty of times our nets are in up to June, and they catch shad.

Q. Do you think that would tend to increase the fish?

A. I think if we had them all out by the first of May it would be a good thing for the increase of fish.

Q. Would you be willing to sacrifice your present interests to that extent?

A. I think so.

Q. How many pound nets do you control?

A. Sixty or seventy.

Q. How long would it take to take up that many nets?

A. Six or eight days.

Q. How many men does it require to take up a net?

A. It takes two men to take up a net. Two men in a boat can take up six or eight nets in a day.

Q. How many men do you have to operate a net?

A. Two men, sometimes three, to operate a net.

Q. Do you fish up above the Roanoke marshes or below?

A. Mostly above it.

Q. What is the width of that sound above the lighthouse?

A. The narrowest spot is about three miles and the widest part, above that, is about four and a half miles.

Q. I believe the limit now is about two thousand yards?

A. Yes.

Q. Do many of those people come from unprotected territory into your territory?

A. Not as many as some years ago; we have very few.

Q. Does the Vann bill tend to keep those people away?

A. I don't think it does. I think that they have just simply found out that they can have just as good fishing at home.

Q. What do you think of the law as it now is, leaving some of the counties out? Do you think they all ought to be under the same law?

A. I think all ought to be under the control of the same law.

Q. There seems to have been a decided increase of the shad in the upper waters and, you gentlemen say, there was a decrease in these waters. How do you account for that?

A. The only way I can account for that is that we had lots of southerly winds and when the shad came in our waters they did not tarry, and when they struck the salt water they made a bee-line for the fresh water.

Q. To what height does the tide rise here?

A. It varies with the wind. The difference from the inlet would make a difference of two or three inches.

Q. How far, in a direct course, from here is Oregon Inlet?

A. About nine or ten miles.

MR. SCARBOROUGH.

I was impressed with what was said in regard to the inlets along the coast and the suggestions with regard to Croatan Sound, and the question that was asked about the volume of water and that it would require periodical dredging. I don't believe it would. I believe if Croatan Sound were diked and Roanoke Sound here, there is a sufficient volume of water forced up by westerly winds to deepen and widen Oregon and New inlets. If that could be done you would not only have an inlet at Nag's Head, but you would have much better inlets at Oregon and New inlets. Living here, as we do, we understand the way the waters work. We are dependent entirely on the winds for the rise and fall of the water. But if there is not much wind you can't tell the difference. Take a north or a northeast wind and it blows the water from here down to the lower Albemarle Sound and up those rivers, and this water up here follows it. It takes a northwest wind to force this water down and it will run through Croatan and Roanoke sounds, but if there was this inlet the water would seek its level by going into the ocean, and by that means we would have a vast territory up here, where there used to be millions of oysters. Take Currituck Sound; the bed of that sound is a bed of oyster shells, and there are rocks that are very nearly out of the water where oysters used to be, but there are no oysters there now, simply because there is no salt water. But, if there is a volume of water let in above, you will have oysters. If we have a salt season or two the

dead shells will take a new start, and we will have a lot of little oysters north of Roanoke Island.

Q. Upon what does your season depend?

A. The season depends here on the salt water.

Q. Upon what does the salt season depend?

A. We are governed here, or affected rather, by the volume of water that falls in the upper part of the State and in Virginia, that comes down the Roanoke and Chowan rivers and, I remember, two or three years ago, we were doing splendid fishing and a freshet came down Roanoke River and we did not catch any more fish at all. And that's the main reason why you caught the shad last season. We had salt water here and there was not enough fresh water above to come down here and interfere with our fishing. Take a salt season and the fish will go up the sound and you catch them as they pass. We can hear tell of a catch of fish today being made at Hatteras, and about the second day they will strike way up the sound. If we have strong tides on the south end our gill nets don't get any fish, simply because the force of the tides cuts the nets from the bottoms and the fish go on under them. The nets are held on the bottoms by means of bricks, and that brick has a string to it about eight to ten inches long and they are five yards apart. The lines between these bricks must be as much as two feet or more above the bottom of the river or sound, as the case may be, and there is no chance for the fish to pass under. The weights on our pound nets are from six to eight feet apart and the force of the water lifts this line up the sound and the fish go under. We can't catch fish much down here in strong south winds. People up the sound don't have the tides to contend with and will catch more fish than in this locality. As to the effects of fishing the waters limited from Oregon Inlet to New Inlet (five miles, I believe), the last Legislature passed a law to change that inlet. That is a mistake. That takes out right much of the gill-net-fishermen's territory. It may be better for the pound-net-fishermen, and gives the shad a better chance to go through that inlet. It will benefit a few men for that law to be changed, but it will benefit many more for that law to remain as it is.

Q. Can you suggest any changes in the Vann bill?

A. I think the Vann bill does very well as it is, but it would give many fishermen some advantage to move Vann bill up five miles. It works a hardship on many fishermen to make it ten miles.

Q. You are fishing below Roanoke marshes?

A. I am fishing at Roanoke marshes. Within 500 yards of Roanoke marshes. I fish on the marshes at the other end of Roanoke Island.

Q. Do you fish pound nets?

A. Yes.

Q. It has been suggested that the government should keep open another inlet, say at Kitty Hawk. What effect would that have, say upon the oysters in Croatan Sound and Roanoke Sound?

A. I think it would increase the oysters.

Q. Would it give you more salt water in Croatan Sound?

A. Yes.

Afternoon Session.

MR. SCARBOROUGH.

We were talking of the effect of cutting an inlet at Kitty Hawk. To dyke these waters across Croatan and Roanoke sounds, I believe, would work a hardship on the people of this island.

Q. If a larger quantity of fish come through New Inlet would not people fishing in that section transfer their operations to the other section?

A. The principal part of the fishing is done from Long Shoals River to Hog Island.

Q. Is there any fishing out in front of Durant's Island?

A. I don't think there is much.

Q. Where is Long Shoal Island?

A. (Answered by pointing to map.)

Q. There is not much fishing below that?

A. Not much. Up to a couple of years ago there was scarcely any fishing done in the sound below that.

Q. Would that be an indication that the fish do not come in above Hatteras Inlet?

A. Yes, Hatteras and Ocracoke inlets.

Q. You were speaking of the effect of deepening that inlet and how it would affect the waters. What effect would it have on the island? Some gentleman expressed an opinion that it would flood that island.

A. You mean on the fishing industry of the island? As far as the island goes it would not have any effect on that. We used to have a natural blockade across the south end of Croatan Sound. The reason Nag's Head Inlet filled up was because the force of the water washed the marsh away and washed it through. Take west winds, we have a low sea and that makes a great difference in the water; makes it lower on the outside and higher on the inside and it will run out.

Q. When was that old Nag's Head Inlet stopped up? Was it within your recollection?

A. I don't know. There have been inlets all down those banks. I remember, four or five years ago, there was a gentleman through here looking up some old records on the lower banks. In 1712 there was a map made by one Spencer commencing at Spruce's Creek and running

north to Kennekeet Inlet. It was evident there had been an inlet there. One old lady at Stumpy Point remembers crossing that inlet when she was a girl. She is over eighty. This was just north of Kennekeet.

Q. What about sturgeon fishing?

A. The sturgeon fishing in this sound has stopped. About eight years ago or eleven, I went up Albemarle Sound with four crews of sturgeon nets and did not catch any sturgeon. I went home and into Pamlico River and I shipped out of that river sixteen kegs of caviar, and the next year it decreased, and so on. These sturgeon are a good deal like sheep; they go in droves.

Q. Do you think it would be advisable to have a closed season and prohibit the catching of sturgeon for ten years?

A. I think so.

Q. Where do they spawn?

A. They spawn in brackish water to fresh water. They go up to where the warm water runs out of the creeks and rivers. The majority of them spawn next to the shores on the sound.

Q. I believe the shad has to have fresh water?

A. Not much.

Q. Have you seen much of the spawning in this place?

A. No, I have not. I have caught now and then what we call a ripe fish.

Q. Have you seen them killed while depositing the spawn?

A. I have caught fish at sea and I have caught fish in the sound, but you don't get any ripe fish in the salt water; you do pick up ripe fish in the rivers and heads of the sounds.

Q. You base your information merely on not catching the ripe fish?

A. I do not. The people here hardly put in early enough in the season. Most of the people who fish for sturgeon are engaged in the shad fishing, and they don't want to leave that until the run of sturgeon passed and we have what we call a trash fish that breaks them up.

Q. What is the catch of sturgeon on the outside each year?

A. A few are caught.

Q. Have there been any sturgeon caught in your nets this season?

A. A few.

Q. Were they ripe and ready for spawning?

A. No.

Q. What would a keg of caviar bring?

A. The last quotations I got a keg of caviar would bring about \$202; \$2.50 a pound.

Q. How many sturgeon would it take to fill a keg?

A. The sturgeon that I caught on Pamlico would run about three to

the keg. There have been a few caught in the sound this spring that checked the man who caught them over \$100 each.

Q. Is it possible to liberate the roe sturgeon from the pound net?

A. Hardly.

Q. If required by the law would it work any hardship on the fisherman?

A. Yes.

Q. To what extent?

A. The man would have to damage his pounds and turn out a lot of shad to turn out a sturgeon, and it would be quite a money loss to him. The catch of sturgeon is so small in the pounds that it does not amount to anything.

Q. In regard to the oyster industry, what suggestions and advice can you give us?

A. About the best thing to be done for oystering would be to stop dredging for a number of years and not permit any dredging at all around the south end of Roanoke Island because the balance of the sound is dependent upon that place for oysters.

Q. Where is that place?

A. You see those oysters are on rocks and are very small. In the spring of the year we have strong tides and it takes the oyster spat and carries it down the sound and deposits it.

Q. Do you mean to say that the oysters down the sound are not spawned?

A. Not so much so as these, because these have the right water.

Q. Have you made any observations along this line?

A. Yes. I have seen buoys up around the head of this sound with millions of oysters adhering to them. Sometimes there would be a dozen piled up on each other. You don't see it that way further down the sound. The stakes in the sound will collect more oysters up this way than down the sound.

Q. To what would you attribute this decrease in the oyster catch in these waters in the last eight or nine years?

A. Overwork; and then the people here have caught many plants and carried them out of this State. We have a cull law, but it is next to impossible to enforce it. The buyers will pay perhaps fifteen or twenty cents for oysters uncultured. I know a rock at the south end that has been cleaned off a time or two and left dead shells on it. These should have remained to catch the oyster spat to take a set for another season.

Q. The statistics show that in 1901 the State received \$27,000 from the oyster industry and last year it did not reach as much as \$10,000. How do you account for that?

A. Several reasons for that. The main reason is the low price of oysters and the quantity of oysters caught in the Chesapeake. When they have a good season our season does not amount to much. For the last year or two the demand down here has been very poor.

Q. Is the flavor of the oyster as good here as in the Chesapeake?

A. Yes; in some places. It will average as well. Most of the oysters in the Chesapeake are cultivated, while ours are not, and we can't cultivate as well as they can, because of the tide waves.

Q. If an inlet should be made, or the government should undertake to keep open these inlets, would that cause more tides?

A. Yes. That would be beneficial to the oysters; the more tide waves the better oysters.

Q. What is the cause of the disappearance of the oysters in Croatan Sound?

A. Fresh water coming from Albemarle Sound. Some seasons the freshets will kill the oysters around in Croatan Sound and the north end of this island, sometimes they will kill right many on the south end.

Q. What causes the salt water to disappear in the Croatan Sound?

A. Fresh water coming down the Roanoke and Chowan rivers and driving the salt water ahead of it.

Q. Why didn't it do that before?

A. That has been the condition ever since I have known anything about oystering.

Q. It is just every now and then that you have oysters?

A. Yes.

Q. What suggestions would you make to us about the oyster industry, and what do you think would be best to recommend?

A. To stop the use of dredges for a number of years.

Q. What length of time?

A. Not less than five years. We have not enough tongers in this State and in this county to affect the supply of oysters. Moderate tonging does them good. Take a natural rock, what we call a hard-shell rock, and the dredging does not hurt the oysters so bad as where moderately soft. The dredgers will go for the oysters and when you catch oysters the next year there will be some dead ones half-full of sand. It is not the oysters they take so much as the oysters they kill.

Q. Are there any dredgers in this county?

A. Not now. We had a good many.

Q. Have you, yourself, ever dredged.

A. I have dredged for six or seven years.

Q. Do the dredges hurt as ordinarily worked on soft bottoms?

A. Yes.

Q. Do they work on that in preference to working on the hard-shell bottom?

A. We don't have very much hard-shell bottom here; where the oysters are scattered on the softer bottom they command a better price. The oysters on the rocks around the other side of this island are not caught except to sell to planters. There is some mention made of a closed season for shad.

Q. About what would be the best time to take out the nets?

A. There is no doubt but that our shad fishing season extends too late in the season. I fish pound nets on the south side of this island, and about the first of May we begin to catch the back-runners, those that are returning to sea. The nets should all be taken out of the waters of North Carolina by the first of May anyway.

Q. Is it not a practice to put the down-run shad on the farms?

A. Yes. Many people do it in farming sections. In '72 I went to the fisheries at Sunrise Point, Sandy Point, and Drummond's Point, and Mr. Peter Warren told me then that he estimated his catch at 500,000.

Q. Has that been the case of late years?

A. That has not been the case of late years, because the fish are not so numerous now as then.

Q. Have you any way to estimate the number of down-run shad that are put on the farms?

A. No, I have not. I should estimate there is a large quantity further up. It does not occur here, because, as a general thing we take our nets out of the water very early. I had mine out the tenth of May, and that day I turned loose as many as 200 shad.

Q. Do you think that the great destruction of fish that are on their way to the spawning grounds is the principal cause of the depletion of fish?

A. I think so.

Q. Can you state definitely that the people up the sounds and rivers catch them during their spawning season?

A. I can not. But I presume they catch them as far up the sounds and rivers as the shad go to spawn. I don't see why they should not catch more on the spawning grounds than we catch. On each side of the sounds and rivers the shad come to spawn I don't see why they could not catch more in proportion than we do.

Q. Do they catch any other kind of fish in these pound nets, except shad?

A. Very few.

Q. What are done with these other fish?

A. The marketable fish are shipped. We pick up now and then carp,

a few rock, but our principal fish now are shad. A few years ago a good many small mesh nets were fished in these waters and caught a lot of herring. The price of herring went so low that we found it more profitable to use the large mesh nets than the small ones. By reason of having these nets of larger mesh and by tarring them, the nets are lighter and easier to handle.

Q. Do many of these small shad go into the nets with the large ones? Do you catch many shad six inches long?

A. Yes. We used to catch right many when fishing the small mesh net.

Q. Do they go through the large mesh pound nets?

A. You never think of seeing the small shad now in the pound nets.

Q. In 1902 there were over half a million pounds of shad estimated to have been caught. What kind of nets were they mostly caught in?

A. Part were caught in pound nets and part in purse nets. That is a net that is on two small boats, and it is towed by a larger boat.

Q. Are many of these used here now?

A. No; I don't think there was a crew out last year.

Q. What is your opinion of that method of fishing?

A. I don't see that it has any more effect or is any more injurious to fishing than any other. I think that the small mesh pound nets are worse than the purse nets.

CAPTAIN NELSON.

While he is a fisherman, I am an oysterman. I have been in the oyster business for twelve years. There is very little tonging done in this State. Some at Stony Point, but most is done in Carteret County. When you stop the dredging you stop the market, and there are not enough tong oysters caught to supply the market. We have been cultivating oysters and now they are worth from 50 cents to 75 cents a bushel. We have not been getting that for the past two years for the reason that everything else has failed. In the past season we have been glad to get 25 cents a bushel.

Q. Why was that?

A. One reason was the warm season; another reason was that they had plenty of oysters on the beds; then there was the lack of demand. Poor people eat oysters, and poor people were out of work.

Q. Are you from Carteret County? How long since you had dredging in Carteret County?

A. I don't remember, but about since 1900.

Q. If I am not mistaken you don't have any dredging in Carteret County?

A. No.

Q. Where do the dredgers work?

A. In Neuse River and around Point of Marsh. Carteret County is like other counties that provide for their tongers. The only exceptions we have in Carteret County are around Portsmouth, around the shores, and through Core Sound. All of the dredging ground in Carteret County is now being worked. Take a line from Piney Point lighthouse, the whole of Neuse River; and then a line from Harbor Island lighthouse to Southwest Point; and you take in all the dredging ground that there is in Carteret County.

Q. What effect does this dredging have upon the supply of oysters?

A. The most of our oysters were killed in the coast storm of 1899.

Q. Do you think to continue dredging would materially affect the tongers or increase the oysters?

A. Continued dredging, if the oysters are culled, will help. If they continue taking everything there is, it will not. Another thing I know by experience: When you stop dredging, some citizens will comply with the law, while others will not. The law says to begin the first of November. They begin the first barrel they can sell. The law says they shall stop the 15th day of March; they stop when they find they can't sell any more. We practically have no closed season.

Q. Does the oyster commissioner look after that?

A. The oyster commissioner is not the man to look after that. He is not authorized by the Legislature to pay a man for more than the oyster season. The men at Elizabeth City are glad to get the oysters that are caught after the season closes. The inspector at this place has not been paid to look after this for several years. They have been running coon oysters from Carteret County up to Virginia and the inspector in Elizabeth City has failed to get his pay. He is \$160 short.

Q. I suppose on the 15th day of March, when his pay stops, his inspection stops?

A. I get home the 19th day of March; I get pay up to the 15th. The people dredge right on after that.

Q. You say they go on dredging after that? What suggestions would you make as to the enforcement of the law?

A. I could not tell, with the present means. If we had means it would pay to start the force in by the first of September and let them keep on until the first of May.

Q. How do you think it would do to consolidate the fish and oyster commissions, and have the two under one head?

A. I heard the gentleman speak of that at Manteo, but object, for the reason that the oyster commission did not protect the fish when they had it. We would feel like telling him that the fishermen did not pay the oystermen to look after them.

Q. Do you fish any?

A. No.

Q. You have had opportunities to observe the fishing industry all your life; have you any suggestions you can make in regard to this matter?

A. I can not. I would like to see the oysters protected and the cull law rigidly enforced.

Q. You say you are one of the oyster inspectors?

A. Yes.

Q. You say your duties stop on the 15th of March, and still the dredging and tonging goes on?

A. The last Legislature passed an act so that we will not have any inspectors in the sounds.

Q. Are all the counties in the State under the oyster commission?

A. Except two.

Q. Do you think the law ought to apply to these counties?

A. I am not acquainted with that. I don't think the people want any law. Since I have been in the business I have taken about one hundred oyster tubs. The law says larger than the prescribed size shall not be used. So far as it has come under my observation I have tried to enforce the cull law.

Q. At what point is the inspection of oysters carried on?

A. All over the sound, anywhere where we can find anything going wrong.

Q. Are they inspected on the grounds and also at the cannery?

A. Yes.

Q. And with all that you can not enforce the law?

A. The planters and cannerymen in Virginia do not want them culled.

Q. But are not the oysters inspected before they go out of the State?

A. They are inspected in locks with a hundred bushels of culled oysters on the front.

Q. Are they carried out in bulk?

A. Yes, in 500 bushel lots or more.

Q. Have you any suggestions to make as to how the inspection of these oysters can be improved? Are there any regulations that can be made that would bring that about?

A. Put on more force in the planting season.

Q. Would that obviate the difficulty when a man puts his uncultured oysters on top and his culled oysters below?

A. We have a law that there shall be an inspector aboard each boat and he can not get through the locks without presenting a pass from the inspector.

Q. Then the trouble comes in the carrying out of the law. You have not the force to put the law in operation?

A. Have not the force to put into effect the provisions of the law.

Q. What is the character of the grounds on which the dredging is done?

A. There would be no difficulty if the inspector was on the ground?

Q. How deep is the water on these oyster bottoms?

A. The deepest is twenty-five feet.

Q. In what part of the sound are these bottoms and what is their character?

A. In the middle of the sound there are soft bottoms with hard lumps. I should judge it was ten miles to the middle of the sound.

Q. Do the oysters occur on the hard lumps with intervening areas of soft bottom?

A. In some places there are large rocks where they have grown up and died, some 4, 5 or 6 feet high.

Q. What is the effect of dragging the dredge over such bodies as that? What is the effect on the oysters?

A. Where you drag the dredge on the hard rocks it improves and scatters them.

Q. Doesn't the dredge drag a lot of the oysters down on the soft bottom?

A. I expect it does.

Q. Is it practicable to carry on tonging on these boats on the sound?

A. It never has been.

Q. Why not?

A. The water is so deep and rough, and if there is much wind it is very rough. When you have a lot of small boats you have to violate the law by dredging inside because you can not get out to dredge.

Q. In that deep open water the sea is often so rough the tonger can not work and at such a time the dredger can work?

A. Yes. The oystermen told me this past season that they had had more oysters than they had had in five years, but the markets have been poor.

DR. MOORE.

In regard to the market for oysters of last year, to which both speakers have referred, the market for ordinary oysters all over the entire Atlantic seaboard during the past two years has been extremely poor. There has been a glut on the market, not because of the number produced, but because the demands have been lessened and the reasons for this are two-fold, one of which is brought out here, *i. e.*, early in the season of both years was rather warm weather when the shuckers could

not handle their stock on account of the danger of decomposition. The principal reason, however, was that the business depression of the two years had destroyed the demand for that class of oysters. The persons who could buy the higher grades of oysters were quite capable of doing so, but those who ordinarily bought the shuck stock found themselves confined to the absolute necessities of life. They could not buy the luxuries and consequently the oyster trade suffered. There was also a second factor in the so-called oyster scare which threatened the oyster market in the north for the last two years. Certain planters had laid down oysters in the close neighborhood of the mouths of sewers and had succeeded in contaminating their oysters with typhoid germs. The health authorities discovered that and it got into the newspapers and, although there were but one or two cases it was worked up into such sensational stuff by the papers that the people got the idea that all oysters were infected, which resulted in the low prices. Not an over-production, but an under-demand brought it about.

P. T. MEEKINS.

Q. Do you think the fact that last winter and winter before were warmer had anything to do with the oysters?

A. They were warmer earlier in the season. I have been an oysterman for twenty years and the time has come in Dare County when you can not make a living at it. Fifteen years ago a man could take a crew and go in Pamlico Sound and come back with a good load of oysters. The time has come when something should be done in regard to the taking up of what we call plants and selling them out of the State. I don't think there is a bed in Pamlico Sound that could have paid expenses by catching lawful oysters and selling them; hence they get unlawful oysters, load the vessels and carry them to Virginia. Our oyster rocks practically belong to individuals in Virginia, and unless dredging is stopped the time will come when we will have no oysters at all. I would propose to stop dredging altogether.

Q. How long a time would you recommend to stop?

A. Oysters are something that grow very fast. Two years would be a big advantage. Four years would be more.

Q. Would you prohibit dredging on all the rocks of the State? You would prohibit those in the middle of the sound as well as those that are reached by tongers?

A. Yes. In the middle of the sounds, as Mr. Nelson spoke, we oystermen, the tongers, do their tonging in the middle of the sound. On the rocks that are dredged you can not catch them by dredging nor tonging; the oysters are not there.

Q. Do you think that dredging of itself is an evil or that it is an evil simply because the dredgers have been allowed to take uncultured stock?

A. The dredging at the present time in the condition that the rocks are is an evil. If the laws had been regarded from the first we would likely have plenty of oysters in spite of dredging.

Q. In spite of dredgers?

A. The tongs run a very small business. The large boats are very careful in buying. They would not bother with a lot of small tongs because they want to get a load quick. I have known of them coming this way, catch a boat load, keep them on the same boat and carry them to the mouth of North River and on to Virginia. For small tongs to load a boat would probably take a week; hence they depend upon the dredgers entirely for the small oysters.

Q. Are the tongs particular in regard to their culling?

A. The marketable oysters are taken by tongs because they don't want small oysters.

Q. That is for State consumption? Of course the market oysters are taken entirely by tongs and they are carefully culled. Are you in favor of prohibiting the shipping of these small oysters for planting purposes?

A. Yes. I think they ought to be kept on our oyster rocks.

Q. How would the men make a living if you prohibit the taking of market stock for five years?

A. Oystermen would have to tong and sell nothing but marketable oysters.

Q. How would you suggest that we can best enforce the law?

A. I don't know of any better suggestion than the force we have had, unless the State sends out an army.

Q. Are there many who dredge without paying license?

A. No doubt there are many who dredge without getting out license.

MR. MEEKINS.

Q. Are you engaged in fishing?

A. Yes.

Q. Do you think that the fish laws are sufficient that you have here?

A. I don't know of any improvement upon the law that I would suggest right now.

Q. What would you say as to the date of taking the nets out of the water?

A. I think we ought to have a time for taking the fish out of the water, and it would be a benefit to the fishing industry, although it would prove a hardship to many people. I fish in the upper part of

Pamlico, and the lower part of Dare County, and for those people who fish in Croatan such a date would prove a hardship, yet, to the industry at large, I think it would prove a benefit.

Q. You think it would be a hardship to your section?

A. Yes. The reason why we close when we do is because the fishing season with us is up; while they catch shad later up the sound than we do. If it is closed with us and these people are allowed to fish in the upper sound, it would work more harm to the fishing industry than if we were allowed to fish.

Q. If a date is fixed for the taking out of the nets do you think the same date ought to apply to all the counties?

A. If it is going to make any improvement I would recommend it.

Q. What do you think of the advisability of putting the fish and oysters under one commission?

A. If there is going to be more force put on to make the taxes higher I think the people have enough burden now.

Q. Would not it be more economical?

A. It might be. I think the oyster commission will have to be consolidated with some other to support it.

MR. PUGH.

Q. In what part of the county do you live?

A. On the island.

Q. What do you think would be a proper time for taking out the nets?

A. I think, for the benefit of the industry, the first of May. Of course it would be a hardship for a lot of people.

Q. Would not the increase in fish be sufficient to justify the change?

A. In the end I think it would.

Q. Are you engaged in oystering as well as fishing?

A. I don't know anything about oystering.

Q. What has been your observation as to the practical working of the Vann law? Has it been a benefit to this section?

A. I think it has, to a certain extent. It has been a hardship to a great many; but it has been a benefit to the industry.

Q. Could there be a law that would not work a hardship, necessarily, to some?

A. I don't think there could.

Q. What do you think of putting the whole State under the law and having no counties excepted?

A. I think that ought to be, by all means—have no counties excepted. I think there might be some little changes in the Vann bill that might be beneficial.

Q. In what way would you suggest that these changes be made?

A. I would suggest that it be made five mile limit from the inlet. I would suggest that it remain as it was, only extend to the main channel in the sound. That would leave an open space from the inlet to the channel which leads up into the sound. Heretofore, under the Vann bill, it only extended to Oregon Inlet?

Q. What difference would that make? What would be the effect of the change?

A. I think it will really be better for the industry if it is connected with the main channel which runs straight through. If you run it out of that southwesterly course it conflicts with the gill net fishermen.

Q. Do the gill net fishermen, down below this point, fish all over the district?

A. They fish all over the sound, from the shore to the channel.

Q. Do you think to retain the course of that strip to the west would be a benefit to the industry? (Points to map.)

A. I think it would be a benefit to the fishermen and to the industry both.

Q. What is your idea as to the effect of the inlet fishing upon the catch of fish?

A. We have deep water only in one narrow place where the bar used to run, probably east; now it runs south, and a fish coming up by this inlet, keeps along the shore and when he gets up the shore, to strike deep water they have to turn back and run a south course to get in there.

Q. Does that apply to New Inlet?

A. I don't know about New Inlet.

MR. MIDGETT.

I am a Croatan fisherman. As to the line from Fleetwood Point to the five hundred yards limit on Roanoke marshes I would ask that that be straightened. It leaves a bow in it on Callahan's Creek. It will work no hardship to any one, and only be of advantage to a few fishermen.

Q. Over what width of the sound do the fish run?

A. About two-thirds. When they are going up the sound they turn over that west line.

Q. To what do you attribute the decrease of the fish in these waters?

A. Too many nets is one thing. There being so many pound nets up the sound; the fish go up there and they will go in those pound nets and spawn, and the pound net will set there a month. The stakes are full of moss, and just about the time they begin to get ripe the nets are pulled up and they fall to the bottom and are lost. More fish are

destroyed in one week about Edenton Bay and the mouth of Chowan River than are ever caught in the sounds.

Q. How do you account for the destruction of the spawn around Edenton?

A. The fish go in that still water and will get into the nets when the nets are full of moss and will spawn there. Probably the next day the egg is ripe, and it gets into a condition that when they pull up the nets they all go to the bottom and stay there, and do not develop.

Q. To what sorts of nets do you have reference?

A. Pound nets. I am not talking about the fish that have gone in the nets, but the fish that are drifting around to deposit their spawn. Of course when they go in the nets and find an easy place they spawn in there.

POWELL'S POINT MEETING.

JULY 12, 1909.

MR. HAMPTON.

Mr. Chairman and Gentlemen of Currituck County:—In the Legislature of North Carolina there seems to be some trouble arising from down in Albemarle Sound regarding the tax placed upon the nets in Currituck County and all over the State of North Carolina. I, being your representative and desiring to represent my people, take the liberty of saying to the General Assembly that you people don't want it. But I am glad the committee was appointed and, as we could not have our meeting at Currituck court house, I desire that you express yourselves upon this matter. I do not desire to be your spokesman now. The gentlemen are all present. If you were to run up this sound until you reach the Virginia line and see the nets that we have in the Currituck waters, you would not feel that our people should be oppressed by a tax. We go up into Currituck Sound and come up with fifty pounds of fish, two men working all day. But I desire that the people express themselves relative to that matter. We ought not to have a tax placed upon us. We are burdened with taxes now in Currituck County. We are not able to help the poor Confederate soldier, and yet the Legislature wishes to tax these people who are not able to support themselves. In making up your report to the Assembly of North Carolina, don't add Currituck to that part of the list. We are behind in our crops. You are now in the garden spot of Currituck County. Now what we need is to be let alone. We are protecting ourselves; we are enforcing the law; and we don't need the guards to guard for us. But just let us alone. We are quiet and happy and contented. The people have asked me to come down here and represent them. I shall always endeavor to do my best. It is altogether different. You have different kinds of fish here. You don't need the laws regulating them as they do in Dare County. To come down here and place upon these people a tax—they don't need it. If any man wants this law or thinks it would be beneficial, I want him to say so. I don't see it. I am not a fisherman, but I look at them who do fish, and they feel sore about the Legislature trying to impose a tax upon them. We have got a Democratic county, and I am proud of it. I am living among Democrats, and I want to say this: Let us alone.

We are contented and satisfied and happy. They pay about half the tax that was paid in Dare County. I just want you gentlemen who want a tax placed upon you—I want you to sit down. Any man who is in favor of placing a tax upon the people of Currituck County, please stand up. (Nobody stands.)

I wish to say that you have some of the truest Democrats in North Carolina right here, and they are gentlemen. There is not a member of this committee who is not a gentleman, and they will do what is right. They are fair and square and impartial men, and they will do their duty.

One and one-half inch mesh nets—none ought to be allowed to be set in Currituck Sound smaller than that. As long as they use the small mesh nets, they catch up the small fish.

Q. Is there a scarcity of fish in your sound?

A. Yes, they are scarcer than ever known.

Q. What sort of fish do you catch in this sound?

A. We catch white perch and the robin and the shad, and black bass and the carp. A few years ago, Lieutenant Winslow was going to fill the sound with white shad, by turning loose a lot of them, but we have not seen any shad but have been eaten up with carp.

Q. How many shad do you get in this sound?

A. Few, and on the other side.

Q. In a report of the U. S. Fish Commission for 1902, giving statistics for Currituck County, they allowed 168,000 shad, valued at \$8,635. How do you account for this?

A. They were caught on the opposite side.

Q. Are there any pound nets set in Currituck Sound?

A. Yes.

Q. What do you catch in these pound nets?

A. They catch perch mostly; we have a great many herring in the spring of the year.

Q. To what do you attribute the scarcity of shad?

A. I don't know about the shad.

Q. Do they ever come up in this water?

A. They never did, except in Albemarle Sound.

Q. Why is it that there is no shad in these waters?

A. On account of the number of years of over-fishing at the inlets where the shad come in before there were any restrictions by law there. Up to a few years ago the fishing around the inlets was not restricted and was carried on where might made right.

Q. Suppose the inlets were kept open and the channel kept open, then do you think shad would be profitable in Currituck Sound?

A. No. Shad will never be profitable in Currituck Sound; it is not the right kind of water for them to seek.

Q. Why not?

A. The upper ends of the sound are not salt. Currituck Sound

almost closes at the point called the "Narrows," from this on there is salt water that comes across at a place called Rudy's Inlet, and that water flows down through this section and makes it brackish.

Q. How is the channel at the "Narrows?"

A. It is about the width of Albemarle and Chesapeake Canal.

Q. What do you mean by the "Narrows?"

A. There is a little "Narrows" and a big "Narrows." The little "Narrows" is twenty-five feet wide, and the big "Narrows" is a quarter of a mile wide and not over two feet of water; it is covered with marshes up here. The shad fishermen who have nets in Currituck Sound can not hold a shad in, on account of the tide and the drift grass. Water in Currituck Sound is high in one section sometimes and low in another. The northeast and northerly wind makes it low at Currituck Sound.

Q. How much does the tide rise here?

A. It is not affected by the rise and fall of the ocean. In the case of a severe storm it does come across and pours immense quantities of salt water into Currituck Sound.

Q. What kind of nets do you use in Currituck Sound?

A. The average net used in Currituck Sound is a net 150 yards long by five feet deep, hauled up by men from the stern of a small fishing boat. It is true that in the spring of the year they will put two or three of these nets together and fish along the shores.

Q. Is there not a law to govern their fishing?

A. Yes. I want to say to this committee that Currituck County depends for its money crop of fish on the black bass. That one species pays to the average fisherman what he gets from fishing. Close the season for six months and we will conscientiously obey the law.

Q. What six would constitute the closed season?

A. From the 15th day of April through.

Q. When do these fish (black bass) begin to spawn?

A. In the month of May.

Q. You have seen them in the month of May?

A. Yes.

Q. How do they behave at that time?

A. The ones I have caught in the spawning state were up the creek and along the coves in Currituck Sound.

Q. Were they on nests hatching their eggs?

A. I didn't suppose they made any nests.

Q. In what kind of a place do the black bass spawn?

Dr. Moore:—They usually spawn in the small streams, running up into the creeks, and the large mouth bass, which I suppose is the one common here, frequently spawns around the edges of the marshes. Both

the large mouth black bass and the small mouth black bass are among the few fishes that construct nests. They form the nests by fanning away the soft mud on the surface until they come down to a bed of gravel which gives a firm foundation, and the eggs are then deposited on that firm foundation, and not only that, but the fish act as guards until they are hatched. What I want to know is to learn if there is any one who has seen them when they were spawning, as that would indicate the season which should be closed.

Q. Is there anybody in this party who has seen the fish on their nests?

A. I have seen them in the early spring.

Q. At what time?

A. From the last of May until some time in June.

Q. What is the round robin?

A. The round robin and the mud perch and the sun perch are different local names. I could show them there today, at work, with the nests rounded out and concave like saucers. I have noticed it myself for five years. It seems to me like the question is whether Currituck should be taken in under the Fish Commission and be taxed, or not. We want to show you why we should not. We want to look at it impartially and—

Chairman.—We want to find out what you need to benefit your fish.

A. What we need is the establishment of a hatchery for black bass. To begin with, we give ourselves ninety days more protection than any other county in North Carolina. Should we be taxed by the Fish Commission for protection of what we had already given ourselves before the Fish Commission was ever thought of? For the last ten or fifteen years the Representatives from Currituck County have passed wise and efficient State laws. I believe that I voice the sentiments of Currituck County when I say that they would willingly be taxed if the rest of the State gave the same protection to the same class of fish that we do. But the black bass is spawned, reared, caught and shipped from Currituck Sound and never go out. He is not a migratory fish, but is to the manner born.

Q. Is there not a limit fixed upon the size of the mesh by law?

A. No.

Q. Do you think it would be advisable to have the size of the nets fixed by law?

A. If the Legislature passes a law saying that no net shall be used in Currituck County smaller than a 1 1-2 inch mesh you will confiscate people's property and take it away from them. I don't know whether it would be a wise recommendation or not? I think if there was a law passed that a man in Currituck County should not fish a net less than 1 1-2 inch mesh it would work a hardship upon some of our citizens.

Q. How long do these nets last?

A. A pound net will last about four years; the haul nets and seines about two.

Q. Would there be a hardship in passing a law which would limit the size of the mesh in the future?

A. Now you are coming to a reasonable point. If the legislature will enact a law that no net smaller than a 1 1-2 inch mesh shall be fished in the waters of Currituck Sound and give from two to four years for it to go into effect, it would be a good thing. It will not be a wise law to confiscate what property they have today.

Q. What are you going to catch your herring in?

A. I am not referring to herring, but talking about black bass.

Q. In what kind of a net is a herring caught?

A. He is caught in a 1 3-8 inch mesh net.

Q. When does the herring come?

A. Herring comes in the spring of the year, when the other fishing is over with. We have the herring the first fish we catch in the spring. Last year, the end of February, the people were making nice catches of herring.

MR. TATE.

The catch of herring is made here in the latter part of spring, sometimes as late as May. I am not speaking about the pound nets in Albemarle Sound. There are dozens and dozens of fishermen from this point who don't fish out in Currituck Sound, but out here. The most of them fish in Albemarle Sound, and Mr. Moore's report, when it refers to the large amount of shad caught in Currituck Sound, it was by these men. Some of them fish in North River.

Q. Do they run to head of North River?

A. Very few.

Q. Do they spawn in North River?

A. I think not. Of course the water is black in there; that water and the water of Currituck Sound does not suit the shad.

Q. You say that you are not personally engaged in fishing? Is seven-tenths of all the money that is made in this county made out of fishing?

A. I am indirectly engaged in fishing. I said there were fishing communities. These people are farmers and fishermen, but there are certain communities where fishing is a great industry.

Q. What does the game industry amount to in this county?

A. I should say that the ducks and geese in this county average from \$60,000 to \$120,000 per year.

Q. Does that include the game shipped out or sportsmen coming to hunt here?

A. It includes the game that is killed and sold.

Q. How many club houses are there in the county?

A. Four or five; possibly six or seven.

Q. How many persons are in the county engaged in hunting for a living?

A. I would say 350 to 400.

Q. It is not so large an industry as the fishing?

A. No. More people are engaged in fishing than in hunting.

Q. Have you any idea of the number of pound nets used in the county?

A. That has been disputed once. You could not consider it Currituck County when you get out in Albemarle Sound. The nets are fished in Albemarle Sound, four or five miles from here; from here up the sound, very few.

Q. Are these pound or gill nets fished out there at that point?

A. Pound nets and gill nets both.

Q. How far from the shore are these nets; how many miles?

A. Quite a way out. Sometimes they are set half-way out in the sound. I have passed along when they were two miles from the shore.

Q. Do the majority of your people want any change in the law?

A. The majority of the people of Currituck County don't want any change in the fishing law. We think it is a local affair and the people don't like to shoulder any extra burden of taxes.

Q. What would they think of the law being repealed entirely?

A. They would not have the laws repealed.

Q. Why? Do they do what the law says, when two thousand yards from the shore is the distance they should fish their nets?

A. Because they think they have the best laws they can get. The law says two thousand yards from the mainland is the distance they can fish their pound nets.

Judge Graham:—I wish to make a statement. We have not been sent here to look into any question as to whether you should be taxed or not taxed. This commission was instituted for the purpose of seeing what were the best laws to pass to protect the fish and oyster industries in North Carolina. We are sent down here to talk to you face to face. So it is not a question of taxation, but to see what is best to build up our grand old State. We want you to express your sentiments and you will receive equal consideration and we will be thankful to have you help us work out this problem. If there is a law in existence which you don't like, express your views as to why it should not be.

Q. What law should you think should be passed?

A FISHERMAN.

We people were under the impression that this committee was to meet here to discuss the question of taxation. We had no notice at all. It

came to us in this way: that this committee was coming here to place a tax upon the people of Currituck County. We are all opposed to paying that tax. I am very glad that gentleman made that assertion more plain. We were laboring under the impression that this committee was coming here for the purpose of establishing a tax. I have not been able to read the acts of the last Legislature regarding fishing. I claim to be a life-long fisherman. I have fished dutch nets in Currituck Sound. The question has come up in regard to the size of mesh of nets and of herring. It is immaterial to me. If my people in the county agree that 1 1-2 inch bar net should be used I will cut my nets that same size. Perch, herring, and a few shad is what we catch.

Q. How many pound nets do you suppose are used in the county?

A. I should say 150 pound nets are used in the county.

Q. What kind of nets are principally used in this county?

A. What we call the drag net. As the chub is the main fish in this county, if there could be a law made whereby these could be increased it would be a good thing.

Q. What is your experience? Has the supply of black bass decreased in this county?

A. Undoubtedly so.

Q. To what extent?

A. I will say two-fifths.

Q. To what do you ascribe that?

A. I can't tell. Some lay it to the salt water coming over from the the beach; some lay it to what is called the carp eating the spawn, and others say there are so many more fishing than ever before.

Q. Do you think a larger proportion of the people of the county are engaged in fishing?

A. Yes, indeed.

Q. What has been the increase in the number of people who are engaged in fishing and the number of nets in the last five years?

A. I suppose 150 would not be over-estimated.

Q. How do you think this supply of black bass can be increased?

A. By establishing a fish hatchery.

Q. Have any black bass ever been deposited in these waters?

A. There were a few put out about twelve years ago at a place called Black Waters.

Q. Did you know that the United States government will not establish a fish hatchery in any county which is not under the control of the State Fish Commission?

A. I didn't know that.

Q. Don't you think that is right?

MR. CURRIE.

You have a law here which controls your sound and yet you complain of a depletion of fish. We have a law which controls the Cape Fear River, and we used to have lots of shad, but we haven't them now. We are not under the law and the government won't put the fish in the river. I would like to say right here that I think the welfare of North Carolina is hanging in the balance. So far as having a general law is concerned I think we ought to have a law in North Carolina by which every stream that is worth anything should be under the control of the State, so that we could draw from the United States government part of their patronage. If this is worth anything it ought to cost us something. We ought to look at it from both sides. We don't want to make any pledges. So far as I am concerned I would say that I am in favor of a general law which will help every fishing stream in North Carolina, and I am in favor of being in such a position as to call upon the United States government and say, we demand your fish; I don't want the Cape Fear or the stream on which I live to be cut out because we are not under the law. If a law is worth anything to you it is worth something to me. It is just this: We can't have a selfish law that will benefit one part of the State without helping the other; we can't be cut out. At the same time we find some of the counties that want to be a law unto themselves. It may cost us something, if we have a general law. Some people think that we ought to have a State Commission, like a Railroad Commission, and there ought to be men to see that the law is enforced and control the whole matter. In that way, without doing violence to anybody, we would save the people from themselves.

MR. SCARBOROUGH.

The last Legislature we had a meeting in our township to have a law passed asking for a chance to begin our fishing for the rock and white perch. We can catch them in September and it would do a lot of good to our neighborhood on the banks if they could fish then. We can not commence fishing now until the 20th of October, and by that time they have gone out. If they could fish in September and October it would be a big benefit to these people.

Q. If you were permitted to fish for these fish, could you catch black bass at that time of the year?

A. Mighty few. We catch mighty few black bass. The grass is heavy and they are a fish which sets in the grass and you can't haul them out. I have been living there forty-five years. We fish in the fall for mullets and we usually catch lots of perch, but we never catch any chub. We only catch them during the last of the fall, when the grass begins to tear up.

Q. What kinds of nets do you use for this fishing?

A. It would be a haul net, a drag net.

Q. Is it a net from which you could get the other fish and throw them away?

A. The perch and several salt water fish.

Q. What is it you want to fish for in September?

A. It is against the law to catch any in September.

Q. You would catch some other fish that it is against the law to catch?

A. They would throw them away at that season of the year. At the next Legislature I think it would be good to pass a general law, and I hope you people will think about it more and more. Why have we not a hatchery in this stream? The United States government don't consider that we are interested enough in the fish ourselves to protect them. So, why should they help us?

Q. What about the closed season? Do you think that the laws are satisfactory as to the time of beginning and stopping fishing?

A. I think it is. I have not heard any complaint and so far as I am concerned I am pleased. We need some rest.

Q. About what time do you stop?

A. We stop the last of April.

Q. Probably about one-third or one-half of the value of the catches from this county consists of rock fish and white perch?

A. I say it would only take about one-fourth.

Q. Are there any special measures which you would like to recommend to the committee which would be necessary to protect these fish?

A. When you speak of the white perch and the striped bass, September is the most valuable fishing month. Neither are in the spawning season and at that time they are leaving the sound.

Q. Are you allowed to catch them then?

A. No.

Q. Do you think it would be a good idea to catch the fish at that time?

A. I think if the law would allow us to catch them that month of the year the fishermen would derive more benefit. They don't catch many of the black bass and the people would be greatly benefited because they have no farms.

Q. If we extend the law and allow you to catch these fish, would you throw away the others which you would get?

A. Anything from the first of September to the 15th.

Q. How early would you want to begin that fishing in order to make it profitable?

A. As early as the first of September.

Q. And take it how long?

A. Up to the 15th of April. We are willing to quit the first of April, if the law should be that way.

Q. If it began that early would you stop before the end?

A. Possibly so.

Q. Would you think that law ought to be extended along the bank up to the Virginia line?

A. If they want it. Atlantic Township was all that asked for it.

Q. Would it be efficacious for the other townships?

A. I think there are some people here from the upper part of the county. If they could fish in September they could fish without boats and oilcloth, and if they wait until later they have to work a month to pay for their rig.

MR. BRINSON.

I am a fisherman myself and have been for several years, and I believe that this September fishing would be beneficial to us, as there are a great many fish that come in and go out before we begin fishing. I think it would be best to let it apply to the waters of Currituck County, as our waters are small and whatever fishing law is made ought to be applied just to the waters of Currituck County. The black bass, I don't think, would be caught in the warm season. I have noticed for the last five or six years that there used to be plenty of black bass in the sounds and no carp; since that time there are no more nets fished and they are constantly decreasing and the carp are increasing. And it is my opinion that they must be destroying the spawn.

Q. Where do they spawn in here?

A. I am not able to say. I have been told the spawning was up here.

Q. What time is it you commence fishing now?

A. We commence the 20th of October and close the 15th of April.

Q. How would it do to change it to the first of October?

A. I think if you are going to make a change you had better make it the 15th of September; a change in the closing season would not make much difference. I don't think the fish begin spawning before the first of May. I notice there are a good many black bass along the shore on the first of May.

Q. If they begin fishing as early as the first or fifteenth of September would that have any effect on the price of the fish?

A. It may be, because there are not so many fish caught, but I have noticed in the last of September that they are worth more than when the season begins. We can catch the fish today and put them on the market tomorrow.

Q. Is not that due to the fact that the fishing is prohibited until the 15th of October and only a limited supply of fish can go on the market?

A. I don't know. That may be the case. There are lots of salt water fish that go on the market at that time.

Dr. Moore:—I don't think the catch from Currituck County would have a serious effect on the fish market.

Q. Where do you market your fish?

A. Norfolk, Baltimore, Philadelphia, New York, principally Norfolk.

Judge Graham:—I suppose you have heard the discussion here in regard to the change of the limitations for the beginning of fishing. I would like to hear your views upon this subject.

MR. GREGORY.

A. My views are based on eight or ten years experience.

Q. In what part of the county do you live?

A. Just above Poplar Branch.

Q. Do you think it would be advisable to change the date of beginning the fishing from the fifteenth of October to the first of September?

A. I think if it were changed the other way it would be beneficial. We people in Atlantic Township ask for the law to be extended and we have no objection for others to do as they like.

MR. LUARK.

Q. I would like to ask if there is any one here from the "Narrows" and on the bank side, and what they think?

A. I agree with Mr. Brinson and I live on the beach side. We have the sound on one side and the ocean on the other side. I would like to have a law beginning on the fifteenth of September. But fish buyers are not fishermen. I want the law so I can catch the fish. If we can have the law extended it will just suit me.

Q. Do you think that that would have any injurious effect upon the numbers of black bass?

A. Not unless they get thicker than they are with us. In fishing three hours we will probably catch one. Whenever you haul fish up in the warm season of the year you can't put them overboard. I believe these carp are eating up the spawn of the other fish. They tear up the grass and dig the holes and devour the spawn. I have seen them working around in the marsh like hogs. There ought to be a law to kill the carp.

Q. Do you catch any carp in the spring of the year?

A. Yes. We catch a few in the spring. They are bad to handle then because they don't come in very close. In September is the time when we can get hold of them.

Q. Is there any information by which you can suggest that we can get rid of these carp?

A. I don't know, unless we catch them at all times of the year.

Q. Do you think that you could get more in September than any other time of the year?

A. We get about as many in September as any time.

Q. What would you get for them?

A. We would get three or two and a half cents per pound. Since we have had the carp I have noticed that the black bass have been gradually working away.

Q. How long have you had the carp with you?

A. About eleven years.

Q. What would be the best means of increasing the number of black bass?

A. I don't know. I think the fishing season is just right.

Another Fisherman:—They want the fishing season open until the gunning season begins; then they gun it and they have two seasons.

MR. O'NEAL.

I don't know as to the time for fishing. Of course we catch some perch, carp and rock. As to the black bass, the sea tide injures us more than anything else. Once in every three or four years it comes and kills hundreds and thousands of pounds; just as well kill them as let the salt water kill them.

Q. You don't think it would be advisable to make any change in the date of beginning the fishing?

A. Only for perch, and rock, and carp.

Q. If we made that change, would not that take all sorts of fish?

A. They would have to get all sorts or throw them overboard; and then they would die.

Q. You don't think they would catch many black bass in September?

A. Not very many. You catch more perch in September than in November and December.

Q. You don't think it advisable to change beginning to the middle of September?

A. I am satisfied if the majority wants it. It would benefit me.

Q. How would it affect the fishing industry down here?

A. I don't think it would affect anything, only the carp.

Q. It would not have any bad effect to put it the fifteenth of September?

A. No. If the Fish Commission would send something and dynamite the sound and kill all the carp we would be benefited.

Chairman:—I would like to take a vote on this question as to the change of date from the twentieth of October to the fifteenth of September.

Ayes, 61; noes, 17.

MR. T. G. DOWDY.

I have very little to say. A law that would give us some protection, by keeping the waters open, would be some benefit. Mr. Meekins wrote to us for to pay him some licenses and he sent a man up here to find out how many were fishing. He also referred us to the section that pointed out the fine for commencing to fish without licenses, but we learned from our Representative that you at Morehead were silenced in saying anything about it, so we knew that taxation without representation was out of the question. I believe to keep these waters open for all here and to enforce the Vann bill to its full extent will be of benefit to shad fishing in Albemarle Sound. I, as one of the shad fishermen that fish in Albemarle Sound, am willing to pay a reasonable tax to keep up the office of Fish Commissioner. But the law (the present way it reads) says you shall apply to the sheriff for licenses and our sheriff has not any. Now if the law applies to fish in certain waters I would like to know what I have to pay for. It does seem to me like the height of foolishness for the government to haul fish and put them in our waters and let the small mesh dutch nets destroy them by the hundreds and thousands before we can catch them with gill nets.

Q. How was the catch of fish here this year, as compared with previous years?

A. It was not very good with us. The condition of the water has something to do with gill nets catching shad. The shad have to come in from the south. People twenty or twenty-five miles north of us had better shad fishing than we had. The cause of this is that the salt water coming in from the inlets makes the water clear and the gill nets don't catch when the water is clear. The water coming down Roanoke River and the other rivers is the water the shad is hunting for spawning, and the consequence was that the shad passed right by our nets, went on, and the people living up the sound made a good catch.

Q. Are you a pound net fisherman or a gill net?

A. I have no interest in the pound net fishing.

Q. Are there any changes that you can suggest that would make the Vann bill more efficient than it is?

A. I don't think that I can. I would just say, give the shad all the room that is fair and reasonable with the other people.

Q. How many thousand yards of gill nets are fished from Currituck County for shad?

A. Not a great many. I suppose there might have been 50,000 yards.

Q. What is the length of these gill nets?

A. We have two classes of gill nets; one, the stake net about eighteen

yards long and will stand in about fourteen feet of water. Another class is the anchor net, about 150 yards long.

Q. Do you fish both kinds in Currituck Sound in about equal numbers?

A. The anchor net is getting a little the lead. Now, understand me, it seems to me to tax anything in Currituck Sound would be unreasonable.

Q. Suppose, by their getting in the Fish Commission and having to pay a small tax they could get the United States government to stock the water here with black bass, how would you favor that?

A. I favor very much what Mr. Currie said.

MR. TATE.

You might establish a fish hatchery and three days of a northeast storm would catch the last one.

Q. Has Currituck County made any application to the United States government to have any black bass put in these waters?

A. I, personally, made an application for a small supply of black bass. We found out we could not get them, because we were too far from the Fish Commissioner's messenger's car to keep them alive.

Dr. Moore will make a statement in regard to the fish hatchery.

DR. MOORE.

The statement which was made by Mr. Currie, in regard to the attitude of the Federal Government towards those States and counties which have remained outside of the jurisdiction of the Fish Commission, is perfectly correct. The United States Government, for over thirty years now, has been hatching fish and distributing them broadcast throughout the country. While we have had the power to hatch the fish, and while they have been received with gratitude, we have not had the power to protect the property we were creating. The United States Government, except in two or three very restricted areas, has no jurisdiction over the fisheries proper. It could not pass any legislation which would be effective in protecting the fish and, consequently, in a great many cases the money expended has been thrown away, because the fish put in the waters were not protected by the States. Two or three years ago this question became so critical, in connection with the shad especially, that we were practically unable to secure eggs for the purposes of artificial propagation. The fisheries in the lower waters, before the shad enter the fresh water streams, became so dense; the nets were set so closely together; that by the time the schools reached the upper waters they were so reduced in numbers that the number of ripe eggs secured were not enough to warrant the operation of the hatcheries. It was suggested by several persons connected with the Federal Bureau that we could probably secure some favorable action on the part of the States, by refusing to plant in unprotected waters any fish whatever. This policy has, with a few exceptions, been followed for a couple of years. I think it has, at least, attracted the attention of the States to the necessity of protecting the waters.

So long as we were able to obtain eggs and hatch them, while there was a decrease in the shad fisheries, there was no danger of their being utterly obliterated. The shad was in no danger of being commercially exterminated, but, since the time came that the fish were prevented of themselves from spawning on the natural nest and we were prevented from collecting the eggs, very soon there began to develop a very strong probability that the shad of the whole fisheries of the United States would be destroyed in a very short time.

We have heard a great deal as to the reasons to be assigned for the decrease in the shad fisheries. The man who fishes one kind of gear, tells us the man who fishes the other kind is the offender; another tells us it is due to the closeness of the inlets. That the fish have not sufficient avenue to gain entrance into the interior waters of your sounds and rivers is undoubtedly true. As a matter of fact, I am of the opinion that it can be substantiated by facts, gathered all along the coast, that the decrease in shad and some of the other fish which run up our streams is due entirely to over fishing. There has been reckless over fishing in all quarters. Pound nets have not only been set in places where they ought not to be set, gill nets or stake nets or anchor nets have not only blocked the streams, but there are too many of them all. It is practically impracticable to cut down the whole of the nets fished, but it is up to every fisherman to see that nets are fished under such circumstances and in such places that they will do the least harm; that is, where they will do the least harm to the maximum of fishermen.

One measure by which this can be brought about is, to have as much area as possible under one supervision; not to have one county fished for itself and the next county under the supervision of a man who has very stringent ideas and enforces the laws unreasonably; but to have the whole State (in fact, it would be preferable to have the whole United States) under one general supervision; not to have unanimous laws for every locality, that would be failure; but to have the laws everywhere enforced in the same way. If you are going to have laws, they should be enforced; if you are not going to enforce them, they should be repealed. That seems to me the most important consideration that this committee has before it.

We have heard considerable about the blocking of the inlets and their effect on the fisheries. If there were not other regions than the coast of North Carolina to consider, this might be a good reason for supposing that the depletion of the fisheries, the reduction of the shad, was due to the very small inlets through which the fish have to enter. But it happens that we have along our coast very important shad fisheries which are not dependent upon the small inlets; for instance, there is a particularly broad sweep of water between Cape Cod on the north and Cape on the south, twenty miles across. What do we find in the shad fisheries of that region? They became depleted until the hatchery at Brown's Point hardly gets enough to warrant its being opened. We find that the Potomac River and the shores of the Chesapeake are lined with nets of all classes. Between Old Point and the mouth of the Potomac there are fished no less than twenty-two hundred pound nets, and then there are the gill nets. In the Delaware we find the same state of affairs. There, too, you have a broad opening, the whole distance between Cape May and Cape Henlopen, while the fisheries of the Delaware River have fallen off probably more than here. In the Connecticut River we have the same conditions. I am saying this largely for the benefit

of the committee, not so much to the individual fisherman of Currituck County. I want to emphasize the fact that if you want to have your fisheries here, however isolated they may appear to be, you can not act alone; you have to get into agreement with the rest of the State and under the same general method of administration. I hope you will all lend your best efforts to bring this about.

Question by a Fisherman:—What would a hatchery cost us if we wanted to have one ourselves?

A. What a hatchery would cost? It is impossible to give an estimate of the cost of a hatchery without careful investigation of the grounds; ordinarily a Pond Culture Plant, such as is necessary for the black bass, would cost from \$20,000 to \$25,000 to establish, and how much it would cost to operate it each year would depend upon local conditions. You can not treat it in the same way as shad. You can not collect the eggs in the open and fertilize and hatch them, but you must collect the fish and allow them to spawn in practically natural conditions and hatch the eggs.

Q. Would not that be the most practical way of increasing the number of fish in Currituck Sound?

A. I am not at all sure. I should say offhand that I rather doubt it. The chief utility of black bass culture is in introducing the black bass into regions where it did not before occur or introducing it into depleted streams and allow it to spawn naturally and get the benefit of the fish there. The black bass in Currituck Sound are not indigeous there. They possibly drifted in from other waters; they have been introduced in ponds, or, as is probable, a special plant of black bass was made there; but in most of the waters of this region the black bass was not a native fish. Without that inlet was there I should say, without a knowledge of conditions at that time, that it would be absolutely impossible for the black bass to maintain itself in Currituck Sound. I want to say here that the idea that the salt water is an enemy of the black bass is correct. The salt water has a much more fatal effect than all the carp, and, while speaking of the carp (I would say that that was unintentionally introduced) I am not absolutely certain but reasonably certain, that the Bureau of Fisheries, which brought this fish into this country, did not introduce this fish into Currituck Sound.

As far as their eating the spawn is concerned, I don't think the accusation is entirely just. We have made some investigations in regard to that by a man who labored for three or four years in his study of the habits of the carp. He dissected a great many of them and only in a very few instances did he find the black bass eggs in the carp. It is only a very large carp that can eject a spawning black bass from the nest. The black bass is a fighter from the start, and especially while guarding

the eggs. A big fellow could do it by simply his weight. When the carp once gets into a community he generally stays there. The carp is not without value, however. If there are many of them here it will pay you to catch them at three cents per pound. In New York they bring a considerably higher price. When I made an investigation of Lake Erie, not so many years ago, I found that carp, in many cases, sold in the New York markets, wholesale, at practically the same price as the black bass. There is a market for carp in New York and in any cosmopolitan city you will find all kinds of people who want all kinds of things.

MR. HARRIS.

Q. Have you ever heard of people catching oysters at any time in Currituck Sound?

A. None in my day. But there are shells now in the sound and my father remembers when they had them. I heard ex-Governor Jarvis' father say that he came in and out in a vessel and there were oysters in Currituck Sound then.

MR. SCOTT.

I was in the oyster business in Pamlico Sound, dredging for oysters. It has been four years since I dredged any oysters. When I first commenced dredging for oysters they were no trouble to catch anywhere; that was under the administration of Mr. White, who was Shell-fish Commissioner. There was not any culling done whatever. When I first commenced to dredge oysters a man could get \$300 worth right away. If the oyster industry had been as well protected when I started as when I quit there would have been plenty of oysters now.

Q. What do you think of an entirely closed season for five or six years? What effect do you think it would have?

A. When the dredging was allowed (I think there was a mistake made when they didn't allow it any at all) the boats from the closed counties would go through and catch them up in the counties which were not closed. Carteret County doesn't allow dredging, but licenses boats to fish in other counties.

Q. Do you think dredging is injurious to the oysters?

A. I think too much dredging would have an injurious effect upon the oysters; dredging of oysters has been a benefit to the oyster industry, provided it has been judiciously handled. The nature of oysters is that when cultivated and stirred up they get better. When I quit dredging oysters there were rocks which before that you could not get ten cents a bushel for, that I could get a dollar for when I quit. I think dredging is beneficial and makes better oysters. If you allow the oyster to lie still it will never improve. They need cultivation. There

are numbers of acres of bottom in Pamlico Sound today that could be cultivated.

Q. What would be your idea to have a law that no oysters can be shipped from North Carolina except in barrels?

A. That would make a hardship. I don't know of but one or two places in North Carolina that will produce barrel stock. Down at Swan Quarter there is a place where, if you will allow the oyster to stay long enough, it will make barrel stock.

Q. What is your idea of protection? What recommendations have you to make to the committee?

A. Make a strict cull law and see that it is enforced. Have the shells of the small oysters put back on the beds and you will have plenty of oysters.

Q. Would you have any restriction as to the time of oystering or permit it to be going on for eight months?

A. Oystering commences about November first and stops April first, before the spawning season. The spawning season is the month of May.

Q. Would you suggest any restriction upon the shipping of oysters from the State?

A. I would suggest to allow no oysters to be shipped outside the State under a certain size.

Q. What do you think of a three inch limit?

A. I think a three inch limit would be a good one.

Q. Don't you think that 2 1-2 inches is too small?

A. I rather think so. Now that the rocks have been worked I think three inches will be small enough. I don't think it wise to allow dredging in one section and not in another. The men from one section will go to another where dredging is allowed.

Q. Have you stopped because it was unprofitable?

A. Yes.

Q. Do you think that the ideas that Mr. Currie gave expression to of general regulations of the oyster interest would be very much preferable to local legislation?

A. If you are going to have dredging at all, have it State-wide.

Q. You think that the oyster beds of the State should be opened to dredging and that there should be no county limits?

A. I am in favor of the oyster beds being under State legislation.

Dr. Moore:—I think it would be a very wise thing if you would apply that both to the oysters and fishing.

Mr. Scott:—I think if you would pass a law, to be effective in three or four years, to take out all pound nets, it would work the greatest good to the greatest number of people.

MR. EVANS.

I don't suppose there is a man here who will not admit that a fish can hear, but he is badly mistaken; he don't hear any more than a brick-bat.

Q. What would be your opinion as to the best thing to do for the fishing industry?

A. I don't know. I think the suggestion of doing away with the small mesh nets is the most important suggestion. I have seen men haul up fish and cull out one barrel and leave the balance to spoil; and this is on account of the small mesh nets. If they catch so many little fish there are not so many to make large ones.

Q. What size mesh would you suggest?

A. I think one and a half inch mesh; nothing smaller than that.

Q. You mean for all kinds of nets?

A. I mean for the fishing in Currituck Sound. I don't mean shad nets.

Q. What nets are used in Currituck Sound?

A. Drag nets, pound nets, and seines. I don't fish myself, but think a great many people who use small nets will be benefited.

MR. ERNEST CAHOON.

I have been fishing for nine years, up and down the sound. I want to say that the small mesh bar is what is ruining the fish today. It catches the small fish that can't be used for commercial purposes. Do away with the small mesh bar and have the large, and fishing will increase within the next two years more than it has lost in ten. If you will take away the mesh bar pound net, you will find that the fishing industry in eastern North Carolina will prosper. People up the mouth of the Scuppernong River are doing away with the small mesh bar. They are using large bar. The small mesh bar pound net has done more harm in the waters of Albemarle Sound than anything else that could be placed there. The people on Hatteras are using large mesh pound net and, therefore, I deem it necessary that the greatest thing that can be placed before the people of eastern North Carolina is that of the large mesh pound net for all kinds of fishing.

Q. You don't have any sturgeon here?

A. No sturgeon up here at all.

HATTERAS MEETING.

JULY 13, 1909.

MR. NEWLAND.

Gentlemen of Dare County:—We have come through what seems to us a great tribulation. To mountaineers like myself and my associates we thought we had a pretty hard road to travel. While we look considerably sunburned now, we were beautifully white about that hour and we all had a feeling of uneasiness.

We are here, gentlemen, in obedience to an act of the Legislature, passed at its last session, appointing a committee to visit the waters of North Carolina and to converse face to face with the fishermen of this State. This committee is composed of Judge Graham, Speaker of the House; Mr. Dough-ton, Mr. Currie, and Mr. Stubbs, on the part of the House; and Senator Bar-ringer, Senator Travis, and myself, on the part of the Senate. We also have with us an expert from the Bureau of Fisheries from Washington, Dr. Moore, who will talk to you tonight.

This is your meeting, not ours, etc.

MR. MEEKINS.

A year ago there was passed the Laughinghouse bill, which act took the fish net down to 1 1-2 inch mesh, which was a great detriment to the people here. We don't use these nets in the spring of the year. The small nets we use in the summer time and catch such fish as blue fish, mackerel, etc. We use pound nets here pretty nearly altogether.

Q. What size net are you using now?

A. Inch bar, two-inch mesh.

Q. What size do you think it should be?

A. I think that it should be no larger than that. I think you save fish by it, because you can take the large fish out and turn the small fish loose.

Q. Is it practical when you fish your pound nets to separate the large from the small and throw the small fish back in? Do they die in the net?

A. No; very few. Of course it is impossible when you catch many but that you would kill some of them. Most always the people here return the small fish to the water. We generally contract here to sell to different markets, Norfolk and Washington, and we generally have a contract to sell a trout not less than 10 inches long.

Q. With whom is that contract made?

A. Among the fishermen and the fish buyers.

Q. What fish do you catch this time of the year?

A. Mackerel, trout, blue fish, etc.

Q. What size nets are you fishing with now?

A. Inch nets or two inch mesh. Mesh means the long way. The

Laughinghouse bill made us fish 1 1-2 bar or three-inch mesh. With these nets a fish that weighs a pound will gill into it, and one that weighs three pounds will gill into it. We hardly caught any mackerel last year, because they spoiled in the net.

Q. When you fish a large mesh will the small fish pass through?

A. No; the mackerel forces the net worse than any other fish.

Q. The practical result of increasing the size of the net then is to destroy the fish?

A. Yes. It destroys lots of them because they gill in the net.

Q. Are any fish caught here for fertilizing purposes?

A. No; none at all.

Q. How much would the refuse fish that have to be discarded amount to in each year?

A. I can hardly tell; very few though, because you can turn most of the fish loose if you want to, at least the small fish.

Q. Can you, when you have a very heavy body of fish in the net?

A. Yes. You have to dip them out with a small dip net.

Q. Do you think a man engaged in sorting out the fish as they are turned out in the boat would take the trouble to throw the small ones overboard alive?

A. We generally do it when we are dipping them in, and lots of times men get down into the boat and throw them overboard. It is practically impossible but what you will kill some of them; I don't care what kind of a net you have you will smother some of them.

Q. Is it not that the larger the quantity of fish the greater proportion of small fish you kill?

A. Not all the time. It is according to the kind of fish you are catching.

Q. Do I understand correctly that you fish one size net during the spring and another in other parts of the year?

A. Yes. Sometimes they have one or two small nets, but it never pays. You catch more fish by throwing the larger mesh net. We use anywhere from two to two and a half inch bar; the larger net is deeper and that is a consideration.

Q. Would the herring gill in the net?

A. No, they go right through.

Q. How many pound nets are used in this town?

A. I don't know?

Q. Do you use principally pound or gill nets in catching shad?

A. Principally pounds.

Q. How near are your pound nets set to the inlet?

A. We don't set within two miles of the inlet. There was a limit made by the Vann bill that covers certain grounds.

Q. I suppose you go to the full limit of that bill?

A. Yes, we set as close to the limit of that ground as the law permits.

Q. Have you any suggestions to make as to how near to the inlet these nets should be set?

A. The laws of nature prohibit us from going near the inlet.

Q. How deep is your inlet?

A. I think it is about twelve to forty feet on the bar; of course it is deeper than that in places.

Q. How wide is the inlet?

A. One and one-third miles.

Q. How is it as to oysters? Is any dredging done in this section?

A. Not here; very little oystering done here.

Q. Those who catch oysters; do they use dredges or tongs?

A. Tongs; practically no dredging done here.

Q. Why is that?

A. Hardly enough oysters here to pay.

Q. Was there ever any dredging done?

A. There has been a little in the sounds. We had a law that they should not dredge inside of these rivers.

Q. From your observation do you think that there has been any perceptible decrease in the fish that have been caught here during the past five years?

A. In some cases I think there have. In others I think there have not.

Q. In what fish has there been a decrease?

A. There has been a decrease in blue fish. There have not been any large ones here in fifteen or eighteen years.

Q. Have you ever heard of a time when there were any blue fish here?

A. There are always some here; that is, in their season. We have not had any large ones in over eighteen years.

Q. How do you account for the decrease?

A. I can't tell. Some think the pound nets run the fish off.

Q. How is it with the mackerel? Is the supply as much as it was ten years ago?

A. Why, yes. There were some ten or fifteen years ago. They either go by us or to some other place; they don't come here on the inside and some years we catch more than we do others.

Q. Do you catch any black bass in these waters?

A. Very few; none worth speaking of.

Q. When you speak of black bass you mean sea bass? That is a different fish from the fish caught in Currituck County.

A. Yes, I mean black sea bass.

Q. Do you catch these on the inside or out in the ocean?

A. Now and then; occasionally one is caught on the inside.

Q. Are there many herring caught here?

A. Very few.

Q. Has there been any decrease in the catch of herring?

A. I don't think so. They never have caught many herring here.

Q. What is the principal fish you catch here?

A. Butter fish and trout.

Q. Do you see any decrease in the amount caught?

A. No, not as a general thing. There have been more trout caught here this year than a year ago. One year they will miss and the next year you will catch them again.

Q. Have you any suggestions to make of any particular way in which the law should be changed or amended?

A. I don't have any at all.

Q. Have you any suggestions for the closed season, or do you think the time for catching should be limited?

A. I think there is a law in the statute book to that effect.

Mr. Meekins:—No special time as to when they shall fish.

Q. Can you suggest any time to stop catching shad?

A. I don't think so here. Our fishing is about up by the time they begin to catch above. Our fish are gone by the middle of April.

Q. Is there any sturgeon fishing from here?

A. None worth speaking of.

Q. Has the catch of sturgeon decreased here? Did you ever catch in years gone by more than you catch at the present time?

A. They never fished for them here, at least not worth speaking about. Once in a while they would catch one in a pound net.

Q. Why do you not fish for herring here?

A. I could not tell you, unless it is because the water is so clear that they leave the nets and go on up the sounds, where they strike the fresh water.

Q. Do you fish a net of sufficiently large mesh to liberate the herring?

A. Yes; most of them.

Q. Will they get out after they enter the net?

A. Yes, they will get out.

Q. Will the shad do that?

A. Herring are the only ones that go out through the mesh.

Q. Are there any other fish that will do that?

A. During shad fishing season we don't fish for any other fish much.

Q. What is your view about putting all the counties under the same law?

A. I am not able to say because I don't know the conditions in the other counties.

Q. Have you seen any benefit from the operations of the Vann law?

A. No. I can't say that I have.

Q. The fishing is about the same?

A. Of course it opens a place through here and lots of the fish go through, and it acts as an aid for navigation.

Q. Has there been any increase in the number of shad taken here in the last two years? Are you using more material than you did two years ago?

A. No; there is not, according to the materials used.

Q. Are you using it in practically the same places?

A. No. We use small nets; ten years ago they did not fish any shad pound nets out in the open sound; they fished them all inside the reef.

Q. Do you think that that has had any effect on the movements of the shad in the upper waters during the spawn season?

A. No. The law prohibits us from going any further from this reef than 2,000 yards.

Q. Do these nets out there catch any more shad in proportion to their size and length than they did before?

A. I don't think so. They have longer stands of nets there now.

MR. W. L. GASKILL.

Q. Were the nets fished any nearer to the inlet before the passage of the Vann bill than they are now?

A. No; I think not.

Q. What can you tell us about the oyster?

A. I never catch any oysters.

Q. Any oystering done from this place as a business?

A. No.

Q. Have you any suggestions to make to us by which you think the situation can be improved?

A. I don't know of any.

Q. What is your view about making the same law apply to all the counties of the State?

A. I don't know much about the other counties.

Q. Do you ever fish in Carteret County?

A. No.

Q. Do the people from the other counties come into this county to fish?

A. No. They don't come in this county; they go in Hyde on the other side of the inlet.

Q. Is Ocracoke or Hatteras the dividing line?

A. Hatteras.

Q. How long have you been fishing?

A. About ten or fifteen years.

Q. Do you see any decrease in the number of fish that are caught in these sections?

A. Some years there's a decrease; other years there's a gain.

Q. How was the shad catch this season?

A. The shad fishing this season was not quite as good as a year ago.

Q. Do you think the enforcement of the fish laws of the State should be under one jurisdiction or be left to each county? Should all the counties be under the control of the State in the enforcement of the laws?

A. That is a question I do not know how to answer.

Q. Do you think that the Fish Commission should have jurisdiction over all the counties?

A. Yes, I think they should.

Q. What kind of nets do you fish?

A. Pound nets.

Q. What do you think of using the larger mesh nets? Do you think that it would help matters?

A. Yes. I fished 2 1-2 inch mesh nets last year.

Q. Suppose you were to use a two-inch mesh; what would be the result?

A. You would not catch any fish.

Q. What! would the fish pass out through the net?

A. Yes, they would.

MR. E. E. BURROUGHS.

Q. Do you endorse what was said? Is there anything with which you feel obliged to disagree?

A. Nothing at all. I think if we are allowed to have small mesh nets in the summer season it is the only way we can get a living in fishing.

Q. Are you not allowed to fish with what you regard as the proper size net in the summer?

A. We are allowed to fish an inch mesh net.

Q. I understand that you simply object to any change in the present regulations in that respect?

A. Yes.

Q. You think the present law is satisfactory and don't wish any changes?

A. We object to any change in the present regulations.

Q. Do you yourself engage in fishing, or do you simply own the nets?

A. I don't fish myself; I own the nets. I have fished them a year or two back.

Q. Can you give this committee any information as to the movements of the shad in this vicinity? What part of the sound do they pass up?

A. It is hard to tell. I think the majority go up the North Sound up to the north of Croatan.

Q. Do you believe that the majority of the shad pass up outside the reef?

A. I think the majority pass outside.

Q. Can you give to the committee your reasons for that belief?

A. Well, the deep water leads out in the sound and I think they follow that across on the shoals.

Q. Are there any gill nets fished about here?

A. A few.

Q. Do you catch considerable numbers of shad?

A. No great number.

Q. What is the reason that there are not more gill nets fished here?

A. We have clear water down here and you can't catch shad in gill nets in clear water.

Q. The gill net is not effective in these waters, whether the shad are here or not?

A. No.

Q. What has been your experience with the large mesh nets during the summer months?

A. It meshes the salable fish and destroys more fish than we might use than the small mesh nets.

Q. Could you give the committee any idea of the proportion of fish that you kill that way?

A. No, I could not.

Q. How much additional labor would it entail on you or your fishermen to remove these fish from the nets?

A. I am not able to answer that question.

Q. Would it be very expensive to fish that way?

A. It would be more expensive, because the sharks eat up the nets.

Q. The sharks will attack the fish in the nets and, in eating them, will tear the nets?

A. Yes. The sharks will attack the fish that are gilled in the nets and will destroy the nets.

Q. Do you know of any occasions where the small mesh nets have been fished during the shad season?

A. Four or five years ago, yes.

Q. Has it been done during the past two or three years?

A. I am unable to tell.

Q. Will you state that it has not been done during that time?

A. No. I am not sure.

Q. What is your belief?

A. I think some have been.

Q. Is it an uncommon practice or is it done very frequently?

A. No. I don't think it is done very frequently.

Q. Is it done frequently enough to work any harm to the fisheries?

A. No.

Q. Are you engaged at all in the oyster business?

A. No; I am not.

Q. Is there any one in this house engaged in it?

A. I think not. We get very little out of oysters here.

I plant some oysters.

MR. GASTON.

Q. Will you be kind enough to tell the committee what you are doing in the oyster business?

A. I am not doing much in the oyster business. I buy a cargo or so once or twice a season to carry through to Norfolk.

Q. Do you plant any shells?

A. Yes, perhaps 150 or 200 bushels a year.

Q. In what locality do you plant these?

A. Right over here about a couple of hundred yards from this building in a creek.

Q. In a creek?

A. Yes.

Q. Is there much bottom in this neighborhood which can be used for planting the oyster?

A. No.

Q. If you could find considerable bottom in this neighborhood, do you think it could be made a profitable industry?

A. They do as well there as anywhere in the State.

Q. Do you plant only in the creek or do you go to the bottom outside the reef?

A. Only in the creek. In the sound there is so much grass that it covers the oysters up and kills them. On the outside the oyster boats dredged some years ago.

Q. Why? What is the character of the bottom?

A. Yes; it is a pretty good oyster bottom out where the rocks are, but then it is no bottom for planting. The bottom is a kind of soft clayey bottom. There are hard ridges out there, too. I think the shells seem to pile up on the reef at times.

Q. Is this muddy bottom at all suitable for oyster culture?

A. I think so. It looks like the same bottom used in Virginia.

Q. What is the character of the oyster on the natural reefs out there? Do they get fat and grow well?

A. They get fat out there.

Q. If oyster bottoms were leased from the State there, would it be profitable?

A. Yes. They grow pretty well there.

Q. Would it be advantageous to dredge these grounds?

A. I don't think so.

Q. It would not be possible for dredgers and tongers to go on these grounds without a knowledge of the sound?

A. I don't think any one down here will try to plant any oysters out there.

Q. For what reason?

A. There are not many oyster men around here.

Q. If experiments were carried out by the United States government which would show that the bottom was suitable for oyster culture, do you believe there would be any men in this county who would be likely to take it up?

A. No. I don't think there would be.

Q. You don't think the experiments would be worth while?

A. They don't seem to pay much attention to it. I think the State had a load of shells put out in the sound twenty years ago. I don't know whether they amounted to anything or not.

Mr. W. W. Gaskill:—Do you have any recollection of any one trying to see whether the planting of these shells was a success or not?

A. I have no recollection of any one trying to see whether the experiment was a success or not.

Mr. Moore:—I would like to ask Mr. Burroughs one or two questions about the pound nets.

MR. BURROUGHS.

Q. How long a lead do you use in this neighborhood?

A. Two hundred and fifty to three hundred yards.

Q. What size mesh do you use in the lead?

A. Five to eight inches.

Q. What do you use in the heart of the pounds?

A. About five inches.

Q. In setting these pounds, do you set them with both sides of the heart open? Does the leader lead to the center of the pound of the heart?

A. In the summer season we do. In the spring, for shad season, we have one side closed, generally the north side.

Q. You vary it according to the time of the year?

A. Some have both sides and some don't.

Q. In setting your stands, does your leader ever overlap the pocket and part of the heart?

A. As a general rule we start out from the corner heart stake.

Q. Is the summer fishing done with pound nets or with gill nets?

A. With pound nets?

Q. Do you think all the counties should be under the jurisdiction of the fish commission?

A. I hardly know what to say, but I do believe it ought to be.

Q. Don't you think all the counties should be put under the same laws and bear the expenses?

A. I think so. I don't think they ought to be treated any worse than any of the rest.

Q. You don't think you ought to be treated any worse than any of the rest? Do you think you are badly treated?

A. No; not very bad. They came down on us last season by making us have a larger mesh.

MR. GASKILL.

Q. You have not attempted to do anything in the way of cultivating oysters?

A. Yes. When the water is only something like 1 1-2 feet deep I have planted seed oysters and not shells.

Q. Were the oysters you spoke of buying in Carteret County eating oysters or seed oysters?

A. I bought them for edible oysters, but I sold them to a party and he bedded them.

Q. Is there much of that bedding done between Carteret County and Lynnhaven?

A. I guess those were the first load that has ever been carried to Lynnhaven.

Q. What size were those oysters when you planted them?

A. All sizes.

Q. You would not know how much they increased in growth in the course of a year?

A. They don't much more than hold their own. There is some mud there which smothers them. Sometimes they grow as large as your hand.

Q. How much would you say they increased?

A. I would say they increased 1-3 in size.

Q. Is it a fact that the oysters were from two to three inches in size?

A. I mean they were the size like those which grow out on the rocks.

Q. As a rule, not much more than three inches long; after they have been growing a year what size are they?

A. They would go from four to four and a half inches.

SWANQUARTER MEETING.

JULY 15, 1909.

Meeting called to order by the chairman and object of meeting explained by Senator Barringer, who said:

Mr. President and Friends and Gentlemen of the County of Hyde:—You doubtless know that the last Legislature passed a resolution appointing a committee to come down in eastern North Carolina and to meet the fishermen at different points, so that it might acquire information about the fisheries in the eastern part of the State. We began the other day at Edenton the investigation the Legislature has imposed, and then went to Manteo, to Powell's Point in Currituck County, to Hatteras, and from Hatteras we have come to Swan Quarter. We are appointed because of the fact that we have neither any information or interest in the fisheries. We are here to get information from you, not to give information. We have a gentleman from Washington, Dr. Moore, who is an expert in the fisheries business, and he may give you some information today. But we are here today to hear you and to get you to give us some information about fishing in this particular locality. The committee has never been in eastern North Carolina before, and I confess to you, on my part, that it is a revelation to me. That these waters are not filled with fish of every kind I can not understand. It seems to me that you have every conceivable place where fish would swim and raise their young. For some reason the fishing industry in North Carolina is on the decline, and the Legislature, to increase the catch and the industry in every conceivable way, appointed this committee to come here. We want to hear from you. We care not whether a man is a speaker, just so he will rise and give us all the information he has concerning this particular point so that we can report to the next General Assembly. I will ask Senator Mann if he can't call out some fisherman to lead off, as he knows all the people in this locality.

Senator Mann:—I once heard my distinguished colleague say that what I don't know about fish would fill a book. I came here more today to hear Dr. Moore. After he has spoken I would suggest Mr. G. I. Watson.

DR. MOORE.

It seems to me you are putting the cart before the horse. I would like to hear from the men who have had practical experience in fishing in Hyde County before I say anything at all. I must confess I know very little about the local matters except about Beaufort. I have more or less acquaintance with the fisheries along the other parts of the coast, but it is rather difficult to make an application of general information without you know the particulars of the locality which you attempt to discuss. I think possibly that the oyster industry of this region is or was quite an important one. I think possibly I might say a few words when the oyster question is taken up. I wish you to understand that anything I say is of general application; that I have made no specific study of the conditions here; but from hearsay I apply my general knowledge to such conditions as I understand exist. The oyster

fishery of all countries and of all States in which there has been an industry which would amount to anything commercially, has gone through a process of evolution. In the first place, there has been an abundant supply on the natural beds. These beds, established many years ago by nature, in the first settlement of the country were always very productive, although in a great many cases the product of the beds was of inferior quality. The oysters grow in a unique way, each successive generation being deposited in the waters upon the generations preceding, which has resulted in piling up on our natural oyster reefs a great body of oysters many feet in thickness. When these are first worked of course an abundance of oysters can be readily obtained. After a while they become reduced in quantity, it is more difficult to secure a cargo in a very short space, but, on the other hand, the individual oyster becomes superior. They become of a better shape because they are not so crowded. There is not such a struggle between the individual oysters to obtain the food which is floating about in the water. This food consists of microscopic animals and minute plants, each of which is enclosed in a small space. These little organisms have the power of floating in the water. They can not swim well or very far. They can only sustain themselves so far above the bottom and the current distributes them broadcast over any general region. Where the currents are strong and the bodies of oysters are more or less isolated, the production of oyster food is sufficient to make oysters of excellent quality. Where the number of oysters in any given region is very large in proportion to the area of the bottom, naturally each individual oyster obtains less food and the individual oyster is poor in quality and inferior in value.

This happens in the history of all States and countries, for the oyster is found in Europe, in Asia, in Australia, on the coast of South America, and in various other parts of the world, not all exactly alike, but the history of all these places is that wherever there has been a good market, the natural supply has become depleted. In some of our States, such as New York, etc., the beds have become exterminated. There are a few beds in Connecticut from which seed oysters are obtained. In New York the sites of the natural beds can be determined solely from the shells on the bottom; the oysters are practically gone.

Now, I wish to say to you that while it is important to protect the natural beds, to do everything possible to make them last as long as you can, the time will come when these beds will no longer be sufficient; they will gradually become depleted in spite of anything you can do. If they are carefully guarded and the cull law is enforced, they will not be exterminated, but the time will soon come when they will not supply the demand. Under such conditions there is but one resort, and that is a simple one: the beginning of oyster culture under private ownership, the State retaining its ownership and deriving a revenue by renting out such places as are suitable for the growth of natural oysters to those enterprising citizens of the State for the purpose of carrying on the business under private enterprise and private supervision. On those grounds seed shells or oysters may be planted. In the beginning it is quite certain that the seed oysters will be better, because they are soon ready for the market. Later on the supply of seed from the natural beds will be found to be deficient. In Connecticut the waters for a dozen miles about are drawn upon to supply the seed, and yet they can not get enough. Under these conditions it is necessary to deposit in the waters the materials on which the young oysters or spat can collect. This is a very

simple process. It involves merely a careful selection of the bottom, to see that the shells will not become covered with drifting grasses dropped from the water, and mud and, in addition to this, you should see that currents flowing over these beds are sufficient not only to supply them with food, but to carry to the new shells the minute fry or oyster in the first stages of its career. An oyster in the first few days of its career is a swimming organism, covered with numerous little hairs which, by waving around, help to move it about feebly. It is more or less under the control of the currents and is carried far and wide. We don't know how many miles it will go, but I have succeeded in getting a set of spat on shells when, to the best of my knowledge, there were no oysters within five miles. Now, this business has, in many States, become an important one. In Connecticut practically all the product comes from the planted beds; in New York the same thing can be said. The few natural beds which New York had are depleted. They never have found oysters in such quantities as are found in the South and in North Carolina; but, as I say, today the oyster industry of New York stands at the top. Maryland, which was endowed with a wonderful wealth of natural beds, has fallen far behind in the race because she failed to recognize that these natural beds would not be able to sustain the demand upon them. Little New Jersey, with nothing like the productiveness of Maryland and Virginia, is today an important oyster producing State.

Now, you are going to come to that in North Carolina. Undoubtedly all of you here know that the beds of North Carolina have become sadly depleted. Part of this is due, I believe, to the very reckless way in which they have been fished. You have in the State a very good cull law. This law is difficult to enforce, and in a great many cases is practically disregarded.

Now, in consequence of this you have taken from your natural beds not only the oysters which would yield a good revenue, but you have taken the young oysters and the shells, you have taken up the rich bottoms and carried them in many cases to other waters. Now by the enterprise of a few persons, in the beginning, and I hope there will be some in Hyde County who will take advantage of it, this oyster industry which is waning can be brought back not only to its primitive condition, but to a value far exceeding it. There are bottoms on which oysters are capable of being produced which never have produced them in a state of nature, because the bottoms in these cases are composed of comparatively soft mud and the young oyster's fry is deposited in the silt. They are barren bottoms merely because there were no hard bodies lying on the surface of the mud to which they could become attached. These bottoms may be taken up by individual lessees with very great profit to themselves and with corresponding profit to the State, for the State's profit lies in the welfare of her substances. All that is necessary is to have some one go into this thing to succeed at it. A great many persons will hold back until somebody else has reaped some of the harvest. I know that the development of an oyster industry in this State is inevitable. I am anxious to see its development come as early as possible. There is a market for good oysters. Poor ones in many cases are canned. During the last two or three years there has been a glut from the natural reefs, but those from the cultivated grounds can readily be sold at a high price. Now, to show you what can be done on a barren bottom, in a place where no oysters existed, I am going to relate some experiences of the United States Bureau of Fisheries in Louisiana. About ten years ago we made an investigation down there, and as a result published a report making certain recommendations.

At that time their laws were mere apologies for laws. The jurisdiction was under local officers. Each parish (they call their counties parishes) regulated its own fisheries. About the only thing that they ever did was to impose some taxes on the fishermen. The taxes went into the general parish fund and were lost sight of in the flood of taxes that came from other sources. Nothing was done for the welfare of the fishermen. One of the principal remedies was the changing of that system; to put it under one control; to have the laws, if not uniform for the entire State, to be uniformly enforced; to have one body responsible for the enforcement of those laws.

This recommendation and the others, particularly those which were designed to encourage oyster culture, were made effective by legislative enactment in 1904, after six years of hard fighting on the part of the advocates of the improvement of the law. The law was further amended and improved in 1906. As a result of these laws, the oyster industry of Louisiana has increased from 1904 to 1909 a little over one hundred per cent. In 1904 there were marketed from Louisiana waters approximately 1,600,000 bushels of oysters; in 1909, the season just closed, there were marketed from these same waters 3,600,000 bushels, an increase in five years of approximately 2,000,000 bushels of oysters.

Now, immediately upon the enactment of the laws which permitted of the leasing of the tidewater bottoms of the State for the purposes of oyster culture, a number of men took up leases, some small and some large. The average was not more than twenty-five or thirty acres per lease. In 1909 there were about twenty-five hundred acres taken up in this way. All of these have not been made productive, but from these bottoms which were leased in the last five years, the oyster production is greater than the entire oyster production of the State at the time when the law went into effect.

The people of Louisiana have been benefited to that extent. They have been benefited to the extent of four or five thousand dollars per year. The natural reefs are better protected than when under the old local jurisdiction, and they are almost as productive now as they were ten years ago. When I made an examination in 1898, I was convinced that many of these beds would be absolutely depleted in less than five years unless something was done. Some of them have disappeared, but most of them are in practically the same condition that they were before. Now, with that in mind, the State of Louisiana called on us to make some further experiments. They wanted their people shown how to grow oysters. We went over the ground and selected three localities; one in the extreme eastern end of the oyster region, one about the middle, and one at the western end, so as to distribute the work along the entire oyster producing region of the State. The local authorities objected to the middle locality on the grounds that there were no oysters there, but our rejoinder to that was that we wanted to show that we could develop them there.

The conditions in Louisiana are probably a little better than here in North Carolina. Inside of one year, or in about one or two seasons after planting, we had marketable oysters. They were fat, deep shelled and round in contour. The people of the locality were quick to appreciate what this meant to them. They are an enterprising people, although they are not generally so regarded. They are the descendants of an old French people deported by the English from Nova Scotia. There was nothing slow about the way they took hold of this proposition. They immediately made application for leasing the bottoms and closed in on us so closely that at the last

we had to go in on private bottoms. Last year sixty thousand dollars worth of oysters were shipped from this area, which was before entirely unproductive.

The men who are doing this kind of work of planting oysters are worked no harder today than they have been all the rest of their lives. When they began this work they were in debt; it was necessary for the banks in some cases to advance the money to pay for their leases, and they had to borrow the money necessary for them to have in order for them to begin work. Today they are independent; they have their bottoms in productive condition. Some of them have been able to buy boats. I know one of those who was to go over to another part of the State to buy a boat which was to cost him seven hundred and fifty dollars. The merchant who gave me this information told me that some of them who, previous to the introduction of this industry, were always in debt, were now loaning him money. Now that shows what can be done. It is going to require somebody to determine that the thing is feasible. Somebody will have to make a beginning, but the man who makes a beginning will make, if not a fortune, at least a competence. That is one of the things I want to see the people of North Carolina take up. I want to see them not only do all they can to protect their natural beds, but I want to see them go into oyster culture, to have something permanent that they can depend upon instead of being dependent for their livelihood upon the precarious fishing of public grounds where everybody is free to come in and despoil them if the patrol boat is not by. The oyster fishery of North Carolina has, in my opinion, a future that is capable of the greatest development. It is a future that will bring wealth to the people of the State when its possibilities are understood.

Now, I want to say further, to those who want to obtain additional information on this subject, that the Bureau of Fisheries at Washington, D. C., is always more than glad to give information and advice to those desiring same.

MR. WATSON.

I have no direct interest in the oyster industry except just as the main industry in which our people are interested in this locality. I live in a section where these oyster beds are quite large and the greatest complaint which I hear is that these oysters are carried out of the State into Virginia and Maryland. The trouble seems to be to regulate the taking of these oysters. The oystermen who go into this industry go into it for the money that they get out of it to supply their personal needs and let the future take care of itself. I live in a section known as Gull Rock. Most of the members of the past session know something of Gull Rock. That section has been largely developed and they have no protection, and the gathering here today is satisfied that what we now have will only last a little while.

Q. Does that law apply to all the oyster beds?

A. No, it only applies to those lying south of that line.

Q. Would you recommend that it apply to the whole county?

A. I am not prepared to say whether I would or not. The people that I live among have been very desirous of having that restriction, but

I understand that the people who live in this section are not favorable to it. I live at Wysocking and we are very anxious for it.

Q. Do they want to restrict simply the dredger or the dredger and tonger?

A. They want to restrict dredging; drive out the dredges.

Q. Are those who want the restrictions dredgers or tongers?

A. They are dredgers and tongers too, but most of them are tongers. What I have said so far has been in relation to the public grounds. We have some private grounds, but they have not been a success. Some of those that have been planted have mysteriously disappeared. We can not control those. I am not charging this as any lack of performance of duty on Mr. Webb's part and we can not control it until there is a public sentiment of the whole people to obey the public laws; if one man is allowed to take his oysters unlawfully and go free, another will do it. Every man feels that he is protected by his neighbor's guilt. I don't think that it is uniform, but there is a great deal of it.

Q. What remedy would you suggest to that?

A. A better moral sentiment.

Q. What do you think this committee can do in regard to that?

A. I don't think that you can legislate morals.

Q. Don't you think a strict enforcement of the law would favor better public sentiment?

A. That is the question; whether a better enforcement would. The question is getting a better enforcement.

Q. Have the punishment greater and have more men in the field?

A. That would make them more diligent to evade. You know these whiskey distillery men have a great many friends who help them to evade the law; it would be the same in the oyster business.

MR. BURROUGHS.

I can only endorse what Mr. Watson says, except our oystermen want dredging; the fishermen are opposed to it.

Q. Is there a larger proportion of oystermen in this county than there are fishermen?

A. In my section there are more fishermen, but more of our oystermen are dredgers.

Q. Do they also engage in fishing?

A. No.

Q. Do they have to dredge out in the sound at a great distance from the bank, or near the bank?

A. They go out in the sound.

Q. Where do tongers get most of their oysters?

A. Around on the shore rocks, Gull Rock, etc.

Q. Is there not a law which restricts the dredger to the lower water?

A. I think so.

Q. Are oysters increasing or decreasing there?

A. I have heard sound men say that there are more oysters there now than there has ever been, but they are more scattered.

Q. The statistics show that in 1901 the State received \$27,000 for the oyster licenses and most of it was expended in the payment of officers for the protection of the industry, and this past year only \$10,000 was collected. Can you tell me why this was so?

A. I could not tell you why. I only know this much: the past season there has been very little market. I was told that the supply of oysters from the Chesapeake Bay was very abundant. The only demand was for plants. In 1901 I don't know what the condition was, whether it was a scarcity of marketable oysters or not.

Q. Were there any oyster canneries in this county at that time?

A. No.

Q. How long since were they here?

A. Closed six years ago.

Q. Are there any near here?

A. There is one at Belhaven.

Q. How many oysters do you suppose they canned last year?

A. The amount they canned was very limited, for canned goods has been lower than for a number of years. I don't know how many cases but the output was very limited.

Q. Do you think it is possible that the demand for canned oysters would be satisfied by canned fruit?

A. I don't know.

Q. Do you know why there was so little demand for it?

A. The condition of the country; we had a surplus of oysters and no market for them.

Q. Was the demand satisfied from Virginia?

A. Not in this State.

Q. Are there many oysters shipped from this State in violation of the oyster law?

A. If I had known of any I would have reported it.

Q. Having been in the business and taken an interest in it for some time, can you tell us whether there was any shipment of oysters last year for such purposes?

A. If there was I did not know it. I frequently heard there was. Mr. Webb has an inspector at Elizabeth City who goes aboard the vessels and inspects the cargoes there.

Q. I don't suppose that any one would suggest that Mr. Webb had been guilty of any non-performance of duty?

Mr. Mann:—The only reports I have heard have been from oystermen who have been caught and punished for violation of the law. I have repeatedly offered my services if they would furnish me evidence of those who had violated the law. The charges have been from men who have been convicted of violations themselves, and they would excuse themselves by saying: "Why don't the commissioner catch those other fellows who are carrying seed oysters outside of the State?" I want to say that I do not believe these charges, and I said: "Get me evidence and I will see that Mr. Webb is impeached." That evidence has never been furnished; it is, of course, hearsay. I have seen Mr. Webb in regard to it myself, and told him if it was due to the laxness of his inspectors he ought to attend to it.

MR. BRINN.

The ground has been pretty well covered by these gentlemen. I have not been engaged in the oyster business very extensively. As far as the dredge law is concerned I don't know anything about that. What would satisfy the people one day would not satisfy them tomorrow.

Q. Do the fishermen object to dredging because the dredges interfere with their nets?

A. I think that is the reason, and, too, they want to save the oysters for themselves until they are through fishing. The tongs object because the dredger gets them all.

Q. The tongs object because the dredger gets all of them?

A. Yes.

Q. Does this dredging have any injurious effect upon oysters; does it kill a good many?

A. I don't think so. Captain Lupton is one who has dredged a good deal and he says they are improved; where the young oysters live until the succeeding season they are much larger and get to be of a much better quality.

Q. To what is that scattering due?

A. To dredging.

Q. Does he cull them anywhere else except on the rock?

A. Yes.

CAPTAIN LUPTON.

The oysters that have been planted on Rose's Bay have succeeded very well, and, too, I want to agree with Dr. Moore that most of our beds are depleted. Dredging hard bottoms practically digs them up and the only thing to do today is to go into planting. I think that we have lots of ground that should be taken up by the planters.

Q. Can you suggest any means by which we can get people to take up these bottoms?

A. Pass a law and put a gunboat on the grounds to keep people from stealing them.

Q. Do you think that there ought to be a more strenuous patrol?

A. It would take a pretty good one.

DR. MOORE.

I want to say that the history that North Carolina has had in this respect has been the history of the early experiments in other States. I don't know of a single place where oyster culture has been introduced that people have not been molested. The people think that because the oysters on the natural beds have been free the oysters anywhere should be free to them. Even persons who are ordinarily conscientious will think it is no crime to steal oysters. In a great many places even now, in spite of the fact that there is a strong sentiment in favor of oyster culture and against depredation of these cultivated beds, it is necessary for these men to occasionally patrol their shores with rifles on their shoulders. It is done even on Louisiana beds. There are always some black sheep in a neighborhood who have a little beach, which they use as a blind. He sells an incredible number of oysters from an acre of bottom, holding this little lease as a reason for getting oysters from other places.

MR. COHOON.

I don't know anything about oysters. As far as I can tell about the fish the laws we have suit all right. All we ask is to get the inlets open and the narrow sounds, so as to give the fish a chance to come in.

Q. In what part of the county do you live?

A. Right here.

Q. Do you fish pound nets?

A. Yes, pound nets.

Q. How would you recommend that the inlets be kept open?

A. I don't know, unless you have a law to stop it.

Q. Has an attempt ever been made by the county officers?

A. I believe they claim they try to keep them open.

Q. How has the catch of fish been the past season, as compared with that of two or three years ago?

A. We did not have any shad here during the past season. I don't suppose there was more than half as many.

Q. Any worse than it was two years ago?

A. Over half.

Q. Was it worse than it was the preceding season?

A. I think so. I believe our inlets are getting filled up so that the shad can't come in.

Q. Would you suggest that some more fish laws be passed trying to keep fishermen from fishing too near the inlets?

A. Yes; they are fishing too near the inlets. The bulk of the nets are in front of the inlets, and when the fish come up they turn back and go out to sea. This applies to Ocracoke and Oregon inlets.

Q. Does it apply to Ocracoke and Hatteras, too?

A. There is just no place left open.

Q. Are the channels blocked up with nets in Ocracoke and Hatteras?

A. I don't know for certain.

Q. Is the inlet at Hatteras blocked more on the Hatteras side or the other side?

A. I don't know anything about it.

Q. Whichever one is more blocked do you think it ought to be opened up?

A. I think the inlets ought to be opened up and give plenty of room for the fish to get on the inside.

Q. Do you think the cost of getting these inlets opened should be borne by just the county in which the inlets are or by all the counties of the State?

A. There would not be much cost about it. Just draw a line and pay for it.

Q. What sort of fish do you catch principally up here?

A. In the spring, shad.

Q. Do you catch any blue fish?

A. Very few.

Q. Do you know of any shad or herring being caught at Ocracoke Inlet?

A. Not very many; they do catch some.

Q. Has there been any decrease in the kind of fish you have been talking about?

A. Yes, for the last two or three years it has been on account of the fresh water. We had lots of rain, which has run the water out of the swamps into the sounds. There are more fish there now than there have been for the past two or three years.

Q. Are there any shad in Pamlico River?

A. Yes, a good many.

Q. Do they go up there to spawn?

A. Yes.

Q. Do the nets in that river affect the run of shad up the river?

A. I don't think so. I think the drift nets have something to do with the fish. The river is very narrow and nets drift up the river all day and night too.

Q. Do they keep any passage-way open?

A. Yes.

Q. Do you believe it would do any good to plant any young shad in Pamlico River? Do you think it would benefit you if the shad were planted in Pamlico River, and do you know if the United States Bureau of Fisheries have planted any young shad in the river?

A. They say the shad will go back where they hatch, and if so it would be a benefit.

Q. Do you think that you should have more fish laws?

A. Yes, I think it would be a benefit to us.

Q. Would you be in favor, in order to replenish the shad in these waters and other waters of the State, of putting the control of these waters under the State Commission?

A. No.

Q. Don't you think they ought to have a law providing that the laws be enforced and that these inlets and rivers should be kept free and open for the passage of fish?

A. I think the narrow sound should be kept open and the rivers where the fish go to hatch. We ought to have at least one-third. Commence at Bath, the river is narrow there and the fish, when he gets through, is making his way up to the fresh water to hatch. When he gets there he ought not to be bothered. There is plenty of water down below, the sound is wide, and when he gets up there he ought not to be bothered.

Q. Do you, or do you not, know whether one-third of the channel of Hatteras, New and Oregon inlets, and the section of waters up the sounds, have been kept open, or whether nets have been set further than they have ever been set before, during this past season?

A. Very few nets are set in Pamlico River.

Q. Do you know whether the nets in Pamlico River have been set according to law?

A. I think not.

MR. JONES.

I am neither a practical fisherman or oysterman, but there is one thing that I would like to call your attention to, and that is in regard to the planting of oysters. In 1905, when I was in the House, we got through this bill authorizing the raising of oysters, and we contemplated then that it would be a great industry in the State. We still think it will be, but it will be necessary for the State to protect these oyster bottoms, and when the State leases a bottom to a man she ought to protect that man. Give better control to the waters than they have. There is not a sufficient number of inspectors to control these industries. If the State will guarantee to protect the oyster bottoms when it leases

them, I believe the people of this section will be interested in planting oysters, and I believe the people from other sections will come in. In regard to fishing I know absolutely nothing, and can not speak at all.

DR. PRATT.

I might say here that they might have refused to guarantee a lease in 1907; now they do guarantee you a lease after it is once taken up. After you once take your lease from the State there is no chance of any one taking the ground away from you.

MR. BRINN.

I believe that the people now observe the law closer than they have. I don't believe that we will have the same trouble in the future that we have had.

Q. Has anybody been convicted of taking oysters out of the beds when they should not?

A. I think so; but I think there has been a disposition on the part of the officials here to be too lenient, on account of the sentiment of helping those who were convicted. The people feel that the oysters belong to them, and do not feel that they are violating the law when they take oysters from the bottoms, and, for that reason, the officials have not imposed the punishment they should have. If they had been a little more severe with those, the conditions would have been improved more rapidly.

Q. Do you think they make the way of the transgressor hard enough?

A. I would advise a better enforcement of the law, and I believe the conditions would justify that now.

Q. What do you think of the idea of consolidating the oyster and fish commissions? Don't you think we could have a more efficient control of it than when we are divided?

A. It would seem to me that it could be done with less expense and would be better for the people. I don't know anything about the work of the fish and oyster interest, but it seems to me that there has been an improvement here in the sentiment.

Q. Are there any suggestions you can make to us as to any amendments to the present law?

A. I have thought very little about it. I have been interested only as a citizen. I would think that a better enforcement of the law would be the only thing needed.

MR. CRADLE.

Q. What about the enforcement of the law?

A. I don't know; I think if we had more inspectors we would be in better shape to handle the oyster industry.

Q. Are you an oyster inspector at present?

A. No, sir.

Q. What do you think about the increase in the catch of oysters in the last five years?

A. We have had the oysters, but no market. I believe we have as many oysters as we ever had.

Q. What do you give as the cause of the stopping of all the canneries in this section?

MR. MANN.

One of the things that I refrained from saying has been brought to the front and emphasized, and I want to add one more word. Mr. Currie's idea as to the duty of the State to protect its lease is exactly the same as the landowner's to protect his tenant. When you plant a crop and invest your labor and such other investment as is required for the proper working of the crop, when trespassers come the tenant should not be compelled to go to the court to enforce his rights, but should go to the landlord. Whenever the State undertakes to protect the oyster bottoms and leases in just such an independent manner you will find that the oyster industry will be one of the most profitable industries in the State.

Q. Would it not be difficult for a landowner who had fifteen or twenty tenants and one of them had violated a law and been indicted and the others were sympathizing with the other fellow, would it not be difficult to enforce the law?

A. It would, but landlords have these difficulties, and it is a poor landlord who would not right the trouble.

Q. Is not a local interest making it difficult to enforce the regulations?

A. It would be, sir, and therein lies the difficulty of making these enforcements. The people don't feel any moral turpitude in violation of these statutes from the fact that previous to the enactment of these statutes the people felt that they had a right to these. This is not due to any inherent remissness on the part of the people.

Q. You think there is a more healthy sentiment in regard to it?

A. I am sure of it, and I am sure that the less responsible people who have violated these laws can charge up some part of that to the part of the community who ought to have frowned down these things instead of giving tacit encouragement. So long as my firm held aloof from serving the State in this matter a conviction was never brought about. Since we have taken it up, however, I am positive there has not been 10 per cent of the violations that there were before that time. I want to say one word in regard to the fish. One of the conclusions that

I draw from the small attendance is the fact that our people are generally satisfied with the conditions as they are. We are not quarreling among ourselves. If you will get the inlets open and the narrow sounds are not blocked with nets, I think our county should bear its proportionate part of the expense. I am not sufficiently familiar with the fish law to say what it would be. The jealousies that have existed heretofore have been in the Albemarle Sound and the people of Dare County. And I want to say, in passing, that the Dare County fishermen are the keenest people I ever saw; old Brother Smith, who is dead, was the best lobbyist I ever saw. It is my observation that our people have been very well satisfied with the Vann bill: they are dissatisfied at the emasculation of that bill by the repealing of that part of the bill providing for the confiscation of nets. They think there should be a means provided for the enforcement of the law. There is complaint that the men who have the enforcement of the law have discriminated in favor of certain interests. Our people are very well satisfied with the regulations. They have heretofore sent their representative to the Legislature telling him to keep us out of the taxes. I think whatever protection comes to us through the enforcement of these laws our people should bear their proportionate part of the expense. We have less reason of complaint than the people who have narrower waters. As to the uniting of all these interests under one general head, I think that is a good suggestion.

Q. How would it do to pass a law establishing a Bureau of Fisheries, similar to the Bureau of Agriculture, with the power in this board to establish such rules and regulations that may best suit the different localities and let them appoint a sufficient number of inspectors to look after these oyster interests?

A. I think your suggestions are admirable, and, if carried out in the spirit in which made, it would be all right, but this oyster commission especially has been the football of politics in this section. There is some feeling that Hyde County is not treated right if it does not get the commissioner. The same condition exists elsewhere. I believe that if the State will undertake independently the enforcement of the fish and oyster laws and regulations of the nets, so that the old and experienced fishermen can't take advantage of the new ones coming in, that it would be a great help.

Q. Is there a law here that you can dredge for oysters in part of your sound, but cannot in another part?

A. Yes.

Q. When fellows in the prohibited territory come up on the territory that is not prohibited is not there going to be some trouble?

A. No, our people have never had trouble about that. I want to say

for the Dare County people that they have never made any kick on our people going up as far as Roanoke Marshes and setting their nets. You can't pass a law that will keep people from going from one locality to another to catch fish and oysters.

WASHINGTON MEETING.

JULY 16, 1909.

Meeting called to order by the Chairman and object explained.

CAPT. DAVE GASTON.

I don't know that we can do anything more than we did at Morehead. I really think, though I do it myself, that fishermen ought never to be allowed to leave a stake in the river after the fishing season is over.

Q. Is that on account of navigation or on account of fisheries?

A. On account of navigation. It is right much trouble after you have fished a whole season and have not done anything to pull those stakes out.

Q. What kind of fish do you catch here?

A. We catch everything that will go in a pound net; shad, herring, rock, mullets, trout, etc.

Q. How was the catch of shad last spring as compared with the catch of previous years?

A. It has been smaller every year for three or four.

Q. How do you account for that?

A. I think there are so many catching them that they have caught them up. Where there used to be one or two nets twenty-five years ago, there are ten today.

Q. I presume we cannot remedy that, but have you any recommendation to make as to how far the nets shall be from the shore or how far the channel shall be left open?

A. No. If you go down in Pamlico River where my nets are set you could not tell I set any. They go out from 600 to 800 yards.

Q. How is it with your neighbors? Do they go out any farther than you do?

A. No, about the same.

Q. What is that point?

A. Small's point.

Q. How wide is the river at that point?

A. About two and a half miles. No deep nets used at all at this point of the river.

Q. How far do you go out in the river?

A. We go out from 600 to 800 yards.

Q. Do they fish on the opposite side of the stream to the same length as that?

A. Yes, about the same.

Q. What sort of nets do they use upon that point?

A. Nothing but small mesh nets.

Q. How has the catch of shad and other fish been during the past few seasons?

A. It has been the best catch I have known of rock and white perch. We would not have made our grub this year if it had not been for rock and white perch.

Q. How far above here is it to the spawning grounds of the shad?

A. I think they spawn all along as soon as they get in the river. It is owing to the freshness of the river.

Q. Do you catch ripe shad at your fishery?

A. The latter part of the season.

Q. The eggs will run from the shad that you catch?

A. I don't know. We happen to get some they call run-down.

Q. Did the Government put any shad in this year?

A. No. My idea for the increase of fish is to make everybody quit fishing at a certain time, say the 20th of April. That is the time the spawning season comes.

Q. Is there any rule set here for the time at which to stop fishing?

A. They say the 10th of May. We get out by the first of May.

Q. Are all the nets pulled out by the 10th of May?

A. I think they are. I don't know of any after that time.

Q. Those are simply the shad nets?

A. Yes.

Q. Do you think they ought to be stopped before that time?

A. Yes.

Q. How about having the closed season begin the 20th of April?

A. I think the 20th of April would be advisable.

Q. Would you recommend that you have any closed season for shad?

A. I don't know much about the other kind. I fish up the river and the others come in the sound. I don't know what spawning season the trout and other fish that come in have. I know we don't catch the trout we did ten years ago. We have had salt water up here and they don't come and sturgeon have played out entirely.

Q. How long since you have got any sturgeon in these waters?

A. It has been six or seven years.

Q. How far below here is it before they begin fishing for sturgeon?

A. I don't know. They commence about the 1st of July, but I have not seen any this season.

Q. How far below Washington are the sturgeon nets set?

A. They are set all down about six or seven miles.

Q. In the last six or seven years you have not had any sturgeon?

A. None at all.

Q. Are there any shad caught below the Tar river bridge?

A. More caught above the bridge than is caught below.

Q. What becomes of those that are caught below Washington?

A. They come to Washington.

Q. How far up do they catch shad?

A. They go clean to the Falls, Rocky Mt.

Q. This season, how far up is the farthest that you have heard of their being caught?

A. I don't know. The men that buy them say they come from way up the river.

Q. They are building a bridge across the sound and some of the fishermen think that the bridge interferes with the shad going up the stream. What effect do you think these bridges have on the shad going up stream?

A. I don't think a fish would stop for a bridge unless there was some noise.

Q. One gentleman said that the fish could not hear. What do you think about that?

A. I know they can hear.

Q. You do not think the bridges interfere with the passage of the fish?

A. No.

Q. Do you think there ought to be a closed season for mullets and fish of that character?

A. I don't know. I don't fish for that kind, but I think there ought to be. The trout comes in the river along about the first of June for that purpose.

Q. You thought that the recommendations of that Convention at Morehead were very good?

A. I thought so.

Q. Some of them asked that their county be exempted from that bill. Do you think we ought to have a fish law applicable to the whole State?

A. I don't know. I was not over there, but I thought they did about as good as they could do.

Q. What about the size of the mesh?

A. I think everybody ought to be allowed the same size net and everything. Every man should have the same size mesh.

Q. What can you tell us about the oyster?

A. I don't know a thing about them except that they are good to eat.

Q. You are not engaged in oystering at all?

A. No.

Q. What would be your idea as to the best means of promoting the fish industry in this part of North Carolina?

A. Only quit catching them.

Q. You think there should be a closed season?

A. Yes. I think it ought to be a State law. Not for us to stop, but for all.

Q. Would your idea be that the law provide for a closed season to be applied to all the counties of the State?

A. All the counties in the State so that all might be treated alike.

Q. Have you any idea of the general sentiment of the other fishermen of your county? Do they believe the same?

A. I think they do.

Q. What season and what time of the year and how long would you suggest that the closed season be?

A. Anyway a month, especially for shad and herring.

Q. Do these other kinds of fish spawn at the same season that the shad and herring do?

A. I don't think they do. We have a red fin that spawns earlier than that. He is a native fish of this river. He is like a white perch except his fins are red.

MR. HAWKINS.

I beg to be excused. Part of Mr. Gaston's talk I think is all right, and with part I differ. I think that by fishing these 3-inch mesh, I think it is against us. We destroy more fish than we would by using 1½-inch mesh. A law was passed several years ago for a 3-inch mesh. Most of us did it, some didn't. I think furthermore it would be better if you would make them all take out the pound nets the last of April or the 1st of May and not set any more until along in the fall. Let the fellows at the inlets comply with that.

Q. What do you think of a law that was passed this year keeping open and free from all nets the inlets for a mile on each side, and one-half the width of the sounds and the bays and rivers leading into the sounds?

A. Two miles at our inlet don't do any good. Two miles is not anything. If you cannot put them away 8 or 10 miles it will do no good. There are tributaries which they will take advantage of. Of course they have the channel open.

Q. Have you ever fished in the inlets?

A. No.

Q. Have you been there at a time they have been fishing?

A. No.

Q. You have not a personal knowledge of what you state?

A. Not a bit.

Q. Would you tell the Committee upon what you base these statements?

A. From what I have read. These men go to work there and set pound nets, catch the fish; then they will at the season of the year they have to take out, along the latter part of August, they will pull out their nets, but, if you understand me, they go to work and hedge up such places. We cannot go in the channel and they can't go in the channel in the inlet, and we go just as close as we possibly can.

Q. You think, then, that there ought not to be any pound nets set within 6 or 8 miles of the inlet?

A. No, sir.

Q. You think there ought to be a free passage clear on up the sound. No nets, either gill or pound nets, ought to be set there?

A. Yes, a free passageway up the sound.

Q. You think that one-third of the sound and river should be kept free for the passage of fish?

A. I think one-third of the sound and river should be kept free for the passage of fish.

Q. Has there been an increase or decrease in the catch of shad for the past few years?

A. A decrease.

Q. To what do you ascribe that?

A. In regard to shad and herring, we have been catching up to the last four or five years right smart.

Q. Are there many more persons engaged in fishing now than ten or twelve years ago?

A. Yes, I think so.

Q. How many would you say?

A. I think there are some more.

Q. How many more nets are used now than there were ten years ago?

A. In regard to pound nets, I don't think in Pamlico River there are as many, but for drag nets, etc., I think there are more. I don't know anything about the sound.

Q. The drag nets are what some of us call seines?

A. Yes.

Q. What is the length of those nets?

A. From 150 to 300 yards. Most of them you will say upon an average will go about 200. Some that they use in the creeks are shorter. When you see them in the sounds and rivers they are longer.

Q. Have you any experience in fishing upon the bridge?

A. None.

Q. What can you tell us about oysters?

A. Not a thing.

Q. Do you think it would be advisable for all the counties to be under the same law and under the control of the Fish Commission?

A. Yes, I think so.

MR. BRINSON.

Q. How long have you been engaged in fishing?

A. About thirty-five years.

Q. Where are you fishing?

A. I am fishing in the river and sound.

Q. How far below the town do you fish?

A. I fish anywhere from here to about 50 or 55 miles in the sound.

Q. What has been your observation as to the increase or decrease of the fish within the past ten years?

A. The increase of some different fishes is better than it has been for the last ten or fifteen years, and the decrease of some others is noticed. Shad and herring are scarcer.

Q. What fish have increased?

A. Rock, chub, redfin and robins have increased some.

Q. Can you suggest any means by which we might increase the number of those fish and promote the industry?

A. I think we ought to have a spawning season from the first of May to the first of September. There should not be any fishing at all in the Pamlico River.

Q. Do the shad spawn in these waters earlier than they do in Albemarle Sound?

A. I could not tell you.

Q. As far as shad are concerned, do you think it would be fair to take the shad nets out by the 20th of April?

A. I think the shad nets have but very little to do with it in these rivers. I think it is where they are caught up at the inlets before they get here.

Q. Do you catch many shad in these waters that are ripe and ready for spawning?

A. No, we don't catch very many she shad that are ripe.

Q. Where do you think the spawning grounds of the shad are in these waters?

A. It depends upon the condition the shad is in when it strikes the water.

Q. How high up do you think the majority of them go before they spawn?

A. It depends upon the water that is in the river when they come in. As soon as they strike good fresh water they begin to spawn.

Q. Do you think there is more spawning above the town than there is below?

A. I think so.

Q. What do you think about the management of the fish industry? Do you think it advisable that all the counties of the State be under the same law?

A. It is a hard chance to make a law to suit all classes of fish. Fish are like every one else; they have certain times of the year to do their spawning. What would suit one fish would not suit another.

Q. Do you think it would be best to have all counties under the same law?

A. Yes, I think so.

Q. Do you think the shad industry would be helped if the Government would put in from 5 to 10 or 15 million fry in the river?

A. I do not think the Government does one bit of good by planting fish.

Q. What became of the shad that were put in?

A. There was about 68,000,000 planted in front of my house about three years ago, and I think they have been getting scarcer ever since.

Q. How about the shad that are spawned up here?

A. I don't think that they do. We catch a plenty of shad that has been in Neuse River.

Q. Do you mean there is no certainty that they will come back to this river?

A. Yes.

Q. From which one of the inlets do you think most of the fish come into these waters?

A. I could not tell you.

Q. Do you fish on the north side of the sound?

A. Yes, mostly.

Another Fisherman:—I should think Ocracoke.

Q. Do you think there are any ways in which the number of shad can be increased except by stopping the fishing at the inlets? You don't think the fish hatchery does much good?

A. No, I don't.

Q. How long since the last fish were deposited by the hatchery?

A. I could not tell exactly. Year before last there was a boat around here, but she did not do much work.

Q. For how many years had that been going on?

A. I could not exactly say. Not many years. In and out for the last eight or ten years.

Q. Do you think that the length of the nets or the distance which they are permitted to go out into the sound ought to be restricted?

A. Yes.

Q. How far do you think they should go out?

A. In what part of the Sound?

Q. In any part?

A. I don't think we ought to have a stand of nets stationary off shore more than 300 yards, beginning so many feet from the mainland. If you give so many feet from the depth of the water they will go on out in the river as far as they want.

Q. Do you mean that the nets should not extend more than 300 yards from the shore?

A. 300 yards from where deep water begins.

Q. What is the width of the river down there where you speak of?

A. I guess it is about two miles; from that to four or five.

Q. What kind of fish do you fish for?

A. I fish for any kind I can catch. I fish the year through for a living.

Q. What kind of fish do you catch now?

A. This season we catch a few speckled trout, a few rock, a few redfin and a few chub. We don't do much on the fresh water fish on the river shore.

Q. Do I understand you to say that you think it would be best for the fishing industry to take out all nets from the 1st of May to the 1st of September?

A. Yes, our drag nets, set nets and drop nets ought to be kept out of the tributaries of the Pamlico River from the 1st of May to the 1st of September. If you turn them loose inside of a month after they spawn they tear up the grass, which destroys the eggs, and will mean that you will have no fish. Our inlet fishing ought to be made to come out by the last of March and not go back until the last of August.

Q. Don't you know that is the only time they have to catch the salt fish down there?

A. No, they catch them there in the fall of the year.

Q. What time of year?

A. I don't exactly know.

Mr. Meekins:—The men fishing there begin the 1st of May until the 1st of September.

Q. Do you get any large number of down-run shad in your nets?

A. I don't think I have caught a down-run shad in two years in my net. I don't use anything but a 200-yard drag net.

Q. Do they get them in the pound nets?

A. I don't think they catch many run-down shad in a pound net.

Q. What is your idea in regard to the closing of the creeks? How long ought they be closed?

A. I think from the 1st of May to the 1st of September, and they

should be open the balance of the winter. My idea in these creeks is to close them up the 1st of May. That don't cause the fishermen to go into one set of creeks and fish them to death.

Q. What would you recommend to protect the fish that go up Pamlico River?

A. You can only protect one or two kinds of fish—the shad and herring.

Q. Don't you think at certain times the channels ought to be open so that they could have a free passage up the river?

A. The channel is open. There is not a net fished in the channels unless it is a little set net.

MR. E. B. MOORE.

After leaving Washington and getting up above here where the river is narrow you will see that the Pitt County fishermen every one fish a seine entirely across the river. They keep the whole river shut up most of the time. They fish with a seine that reaches entirely across the river. The whole waterway is shut up day and night, and I have heard on Sunday. Sometimes they have two nets playing in the same hole. When one comes out the other goes in.

MR. BRINSON.

Q. Do you think in Tar River there ought to be a regulation that there should not be but so many hauls a day and that the nets should only extend a certain distance in the river?

A. I don't know how you would go to work to change it. Lots of times he makes a lot of hauls and don't get any.

Q. How would you suggest that a regulation could be made to let a portion of the fish pass on up to the higher waters?

A. I think a portion of them already goes up there. We have only a small portion here. If a hundred shad are going up the river and 50 fishermen get one apiece, then the other 50 go on up the river. We don't have many shad and herring in our waters, and they have not been here for the last eight or ten years. The cause of it I do not know.

Q. Have the herring decreased in the same proportion to the shad?

A. I think they have. Our shad and herring increased some this last spring. I think probably a third.

Q. How wide is Tar River where they throw the nets all the way across?

A. I suppose 200 or 250 yards.

Mr. Moore:—One hundred and fifty yards, or in some places not 150 yards.

Q. If you cannot have a law to keep them out of the river, how

would it do to have a law that you can fish every other day for six days?

A. It would be a great deal better if they were not allowed to fish every day in the narrow waters.

Q. How would it do to have a law saying you could not fish in these narrow waters say from Friday night at 6 o'clock until Monday morning?

A. I think that is about as near as you could get at it. The people down here only fish about one-fourth of the water, I think from Saturday morning to Monday morning.

Mr. Swindell:—There is a law now to that effect.

Q. What is the extent of the fisheries in Pitt County?

A. Not very many.

Q. What is the number of fishermen engaged?

A. I think there are about six seines fished in Tar River.

Mr. Meekins:—In the spring of 1908 I visited all the seines of Tar River, and there were nine.

Q. Are those seines fished by farmers or by men who make a living by fishing?

A. Fished mostly by farmers. They only fish for about two months in the year.

Q. During these two months do they depend on fishing for a living?

A. They fish and farm together. The farmers who have fishing shores along the river employ labor.

Q. The farmers who live along the river employ fishermen?

A. The largest fishery above here is J. O. Proctor's of Grimesland. They fish during the shad season when the water is not so high. They have a little seine and I will guarantee they will catch more fish in it by the day than are caught below here in \$5,000 worth of seine.

Q. What is done with these shad?

A. They are very valuable.

Q. Have you any idea as to the value of that fishery?

A. I have no idea, but they supply all up in our country. That fishery is located just below a bend in the river, and it makes the river very narrow, and it is a place that has always been noted for its fish.

Q. Suppose that the proposition was made that fishing be closed on Monday and Wednesday? Would those men who catch the fish lose their employment for that time?

A. I don't think the men up the stream are entitled to everything. The people below are entitled to something.

Q. You think that that would be wrong for the hired laborer?

A. Yes.

Mr. Swindell:—They have always contended that we have caught the

fish down here. As a matter of fact, the fisheries in Tar River above Washington pay five times better in proportion to the money invested than they do in Pamlico River. So far as their fishing is concerned, they have a right to fish five or six days in the week, as they do down here.

Mr. Cotton:—After you pass Mr. Proctor's there is no pay in it.

Mr. Swindell:—Mr. Proctor made as much money a year on an investment of \$500 as some parties fishing in Pamlico River with an investment of \$10,000.

MR. SWINDELL.

Q. Do you think that pound nets ought not to be fished any farther than 300 yards from the shore? Would you like to be limited in that way?

A. Yes, if that is the law, I would.

Q. Could pound nets be profitably fished with this limit?

A. It depends on the limit.

Q. Are you willing for such a limit?

A. I am willing to be limited if everybody else is. I don't know but that we will have to do it anyhow. On the whole, I don't see any improvement that we can make except possibly in allowing them to fish these salt water creeks during the winter.

Q. Just as well take out the nets. You know they are greatly decreasing; what would you suggest as a remedy?

A. The decrease is not only in North Carolina, but in the United States. It does not do us any good for them to catch up the fish in Virginia. I saw a statement the other day that more herring were sold to the fertilizer factory in Virginia than are caught in North Carolina. No use for North Carolina to protect the fish and let Virginia catch them.

Q. What fish that you would protect here would be caught in Virginia?

A. Shad and herring and salt water fish.

Q. What basis have you for that statement?

A. I base it on the fact that I don't know of any reason why shad and herring come specially back to the place they spawn at; neither do I know about trout, blue fish or others; I think they play up and down the coast and come in where it suits them.

Q. If the fact that you state can be substantiated it would be of great value to the Committee. Upon what do you base that statement?

A. I don't know where they go to.

Q. Have you any reason for believing or disbelieving that when the shad leave these waters they go into the deeper waters and when they spawn they move up in the fresh water to spawn?

A. Not much; none of us know much about it.

Q. Do you think it safe to make a positive statement about the fish playing up and down the coast when you know nothing about it?

A. I think it is safe to say so. The weather conditions and the condition of the water have lots to do with it.

Q. Did you say that Virginia uses more fish for fertilizer than are caught in North Carolina?

A. I saw the statement in a Virginia paper.

Dr. Moore:—As far as that is concerned, the statement is probably correct. I do not know absolutely. They catch large numbers of herring in the waters of Virginia, and there is a very poor market for them. The supply of herring is greater than the demand. It is quite possible that we could improve this condition if these herring were properly prepared for export, but our fishermen seem not to have the desire or the knowledge as to how to prepare them. In certain parts of the world and in some of the West Indies there is a very large demand for herring, which is supplied almost exclusively by the sea herring of Scotland and Norway. I don't believe that the sea herring is very much superior to the herring of these waters, but it is prepared in a superior way. That trade demands that the eggs shall be packed in a certain way and in certain sized packages, but there are fishermen and fish dealers who are very much like our manufacturers when they come into competition with foreign markets. They think they know better what the consumer wants than he does himself, and refuse to pack them according to the desired qualifications.

Q. Are you a fisherman?

A. Yes.

Q. Where do you fish?

A. I suppose you might say we fish anywhere from here to the ocean.

Q. Do you engage in the pound net or gill net fishing?

A. Both.

Q. How long have you been in the business?

A. I have been in the business about eighteen years.

Q. Are you a fish dealer in addition to being a fisherman?

A. Yes.

Q. In your opinion, can any means be devised whereby the number of fish in these waters can be increased?

A. I don't know of any except regulating the size of the net. I think that is an important thing.

Q. How many years have shad been deposited in these waters?

A. I do not know.

Q. What was the last year that you remember?

A. Two years ago.

Q. Prior to that time had there been a regular time to deposit?

A. I don't think they put them in regularly every year. Sometimes for two or three years in succession, and then skip a year.

Q. About how many were deposited each year?

A. I do not know.

A *Fisherman*.—Probably 250,000 to 300,000.

MR. SWINDELL.

Speaking of the decrease of shad, I went over my books of 15 years ago and we caught more shad in Pamlico River last year than we had 15 years ago.

Q. You mean you have had poorer seasons in the intervals between this?

A. We have had better seasons since 1895 than this year. In the year 1895 less shad were caught in the Pamlico river than this year.

Q. Have you increased your interest in the fish business?

A. So far as catching shad and herring in Pamlico River, I have not.

Q. Is there any more gill nets employed for catching shad than there use to be?

A. I think not.

Q. Is there an increase in pound nets and a decided decrease in gill nets and seines?

A. I think so. There may be a few more pound nets, but there are less gill nets.

Q. How do your books compare for 1900 and 1909?

A. There is more in gill nets than seines. We have caught more shad for the past two years than for the four or five years previous.

Q. Do you attribute that increase in any way to the inlets having been kept open in the past two or three years?

A. I don't know what to attribute it to.

Q. Do you think there is as much fishing apparatus as there was five years ago?

A. Yes, I think there is more.

Q. What do you think about the application of the fish law to the whole State? Ought we to have the industry under the control of the Fish Commission or let each county have their own laws?

A. I think the Fish Commission is a good thing. I find a good many fishermen that are opposed to the tax.

Q. Those that are opposed to the tax, don't they think it is a good thing?

A. I do not know about that. In my opinion, the Fish Commission is what we need in the entire State.

Q. How do you think it would suit the fishermen to say we are going to repeal all the fish laws? What do you think of that?

A. I don't know what would be the consequences then.

Q. Are you in favor of more stringent laws?

A. I think the laws are stringent enough.

Q. When do you think the closed season ought to begin?

A. For shad, I think we ought to have a closed season beginning about the 20th of April for shad nets only. The nets that are fished for herring, I don't think it is right to take them out.

Q. Don't you fish the pound nets for shad and herring both?

A. You will catch some shad, of course.

Q. Is there any way to liberate them without injuring the fish?

A. No.

Q. Then it is practically the fishing for shad and herring both?

A. There are a good many nets fished entirely for shad, as gill nets, and also a good many pounds. The pound nets that are fished in the sound are large mesh nets.

Q. Would that argument affect any of the pound nets in Pamlico River?

A. Affect some, yes.

Q. Would the people affected be willing to exchange their pound nets for gill nets?

A. I think so. Most of the pound nets in Pamlico River are small mesh. There are a good many gill nets fished in this river, and they fish as long as they can catch shad.

Q. You stated that the number of gill nets had decreased. Why is that?

A. Because they do not find it profitable.

Q. Would those who are fishing gill nets continue the use of same unless they found it profitable?

A. I guess we handle more gill nets than any one else in the river. Take an average for the last five years, I don't know whether we have made a dollar out of it or not.

Q. Suppose that this county were put under the Fish Commission and you were called upon to pay a small tax that would be necessary to support the Commission, have you any idea of what proportion you would have to pay of that tax?

A. I expect I would pay a third of it. It might be more than that.

Q. From your observation, where do you think the spawning grounds of the shad are in these waters?

A. Mostly above us in Tar River. The water conditions have something to do with it.

Q. Don't you know that without you are under the Fish Commis-

sion you cannot get the United States Government to plant your waters with shad? And don't you think that is right?

A. Our waters have been protected for years. While we have not been under the Fish Commission, we have very stringent laws, and they have been pretty well enforced.

Q. Are they enforced now?

A. Not much.

Q. What can you tell us about oysters?

A. We handle some oysters.

Q. Has there been a decrease in the oyster industry as well as in the fish industry?

A. I think so.

Q. To what extent do you think they have decreased?

A. I don't know much about oysters.

Q. How long since the cannery was in operation?

A. I don't remember.

Q. How long did it operate?

A. I don't know that. I think in regard to the oyster business, we need a law that will protect planting as much as possible.

Q. If they had a law of that kind, do you think there are many men in the county that could be induced to go into the business?

A. Not in this county; this is not an oyster county.

Q. Did you know that the cultivation law that we drew up at Morehead had been passed?

A. I did not know it.

Q. Have you had some experience with oyster fisheries in other counties? Have you come into contact with the oystermen so that you are somewhat familiar with their sentiments?

A. Yes.

Q. What reason do they give as to why oyster cultivation has not been in demand in North Carolina?

A. Because they have not had the protection.

Q. The present law to which Dr. Pratt refers overcomes that difficulty. In regard to the cull protection or policing of those boats, what do you think could be done?

A. It seems to me the only way would be for the planters themselves to come together and have a watchman.

Q. You think that if a number of planters could locate in a given territory they could afford to have it policed?

A. I think so.

Q. Do you think it would be possible for the State to patrol the oyster beds if they were scattered all over the State?

A. I don't think so. I think it would take too many boats.

MR. DAUGHTRY.

Too many people dredge. Oyster business is something like farming; a good season and the water is just right and the oyster grows, and if it is not, it don't grow. Of course, a good many catch up the oysters, and as to those planting, there is no ground that I know of that is entered except where the oysters have always grown.

Q. How long prior to the entry do you mean?

A. Not over four or five years ago.

Q. How much could you make a day oystering?

A. When the season was good I would average a couple of dollars a day at a place called Judith, in Hyde County. That is really the only place that I know of in Pamlico Sound that a man can plant oysters. There is a little place in Far Creek they can grow, but that depends on the amount of run they have. If they have two or three years and the right kind of seasons, they will grow.

Q. To what extent have the beds in North Carolina been destroyed?

A. They have not been destroyed. They have been improved by dredging. I mean that with cultivation the oysters will grow faster. I know of beds that I have caught from 200 to 300 bushels of oysters a day on that I got from 10 to 15 cents per bushel for, and now I will get ten to twenty bushels and get \$1 a bushel. I believe dredging is a good thing, but I believe the oysters ought to be culled and the small oysters thrown back. This ought to be looked after strictly.

Q. To what extent is that cull law disregarded?

A. They regarded it pretty well for the past year or two. We had the best oysters last year we have had in a good many. The oysters were a pretty fair size and good meat.

Q. You think that the natural beds in this State are in good condition? Then have you any suggestions to make as to any changes in the oyster laws?

A. Not a bit, except allow no fellow to catch them at an improper time, and take beds that are natural.

Q. Do you know anything of such oysters being carried out of this State into Virginia?

A. Not of my own knowledge.

Q. When you cull your oysters, what do you do with the shells?

A. Throw them overboard.

Q. Where?

A. Right where we catch them.

Q. Does your dredging operations ever get ahead of your culling?

A. We can strike beds of rock that it will.

Q. Then what do you do with them?

A. Have to take a longer time. Have to keep them out of the way.

Q. Then it is necessary for you in the course of your operations to deposit your cull on the rock?

A. I think so.

Q. Do any of them get off?

A. In some places you will find little oyster rock that will not be over ten feet. It may be a long time afterwards, and oysters appear eight or ten feet deep on it, and you will find places with little oysters on the edge, on the middle nothing but shells. When there is mud around it, it will be a poor oyster, and when it is on the hardshell bottom there is a nice, fat oyster.

Q. Do you know of any oyster beds in the State that have been destroyed?

A. No.

Q. Do you think that the oyster law is being observed?

A. I think that our people who are trying to get their living from catching oysters are learning to throw the shells back and to observe the law.

Q. Who is the Oyster Commissioner for this county?

A. Captain George Hill.

MR. STERLING.

I am satisfied with the law as it now exists, with the fish law, but I believe that for the best interests of fish we should have a closed season during the spawning of the shad. I believe we ought to have a closed season on shad, say from the 20th of April to the fall of the year. Take the salt water fish, trout, croaker, they spawn along in May and June. Personally, I like the law as it is, but they ought to be protected. You catch thousands and thousands of them full of spawn, and they are not marketable; you can not sell more than a third of them. While I know it is bad for my friends on the other side of the sound, still they are full of food and spawn and are not marketable. I believe we should have a closed season, say May and June, on all kinds of fish. Take the fresh water fish. I believe that Mr. Brinson's idea is right on closing the creeks, but I do believe they should be open after the 1st of September.

Q. Why is that?

A. The law.

Q. What was the aim of the law?

A. The law was passed by petition sent to the Legislature, not only this last, but the two former ones, by the people living on the creeks. They were absolutely opposed to drag nets going in there. They called it their fishing grounds.

Q. Do you have no fishing there?

A. Yes, closed to every one except hook and line. Take, for instance,

on this river, there is Bath Creek and Goose Creek, Lee's Creek, North Creek and South Creek, all of those creeks are closed. Practically the entire tributaries of this river are closed, and the drag netters make their living out of those creeks.

Q. The creeks are supposed to be closed to everybody?

A. Any kind of fresh water fish. I think Mr. B. is perfectly right as to a closed season for part of the year, through May, June, July and August, but I do think it would be right for these creeks to be open.

Q. Don't you know that the reason the creeks are closed is so that those people can fish there with their hook and line?

A. I do, sir. That is the whole thing in a nutshell. The people living on these creeks are jealous and don't want drag netters to go in there. If we have a dry season and the water gets salt it will kill all those fish.

Q. Have you the black bass down in this section?

A. Yes.

Q. Where do you find them?

A. In these creeks.

Q. Are they very numerous?

A. Right much. In the winter time we ship a great many to northern and western markets.

Q. How do you get them if they are not allowed to be fished?

A. We don't catch many since the creeks have been closed. A feller can take a hook and line and catch \$2 and \$3 worth a day.

Q. Do you think there ought to be a limitation as to the distance that they can fish up these creeks?

A. They can only fish so far because they are stumpy. All these creeks more or less are full of stumps, and especially up toward the head, and there is not a certain location on these creeks where you can haul a drag net.

Q. At what time of the year do you propose closing these?

A. During the months of May, June, July and August.

Q. Do you know at what times the black bass or chub spawn?

A. I think they commence the latter part of April. I have had them in the house and dumped them out of a bag and the spawn would leave them.

Q. Have you ever seen them depositing spawn at that time on their beds?

A. Yes.

Q. Do you think that they possibly spawn earlier?

A. They might towards the latter part of April. They don't do it until the water begins to warm up.

Q. Possibly you are not aware that these black bass make a sort of

a nest by clearing away a space at the bottom of the streams. Have you ever seen the black bass on these nests?

A. I have never seen a black bass on its nest earlier than the 1st of May in my life. A great many times the chubs will eat the robins.

Q. What do you think of the advisability of consolidating the fish and oyster industries in the same commission, and give the Board of Fisheries powers similar to that of the Board of Agriculture to pass laws in the different localities to suit the different kinds of fish?

A. I think that would simplify matters greatly.

Q. Are there not a great many matters of great interest taking place during the vacations of the legislature for which the law does not provide, which could be handled by this board?

A. I do. I do not think one boat could do the work. I do not think one boat can do the policing for the oysters and fish, too.

Q. Would not that simplify matters?

A. No question about that, to my mind.

Q. Can you tell us anything about oysters?

A. I don't know a thing in the world.

Q. Don't you think all the counties of the State ought to come under the control of the Fish Commission?

A. I do. In my opinion, the recommendations made at Morehead were about all I can suggest, except as to a closed season. Something was said there as to a closed season, but we don't agree fully. I certainly do think we ought to have a closed season on fresh and salt water fish. Carteret County started a fight on the Fish Commission.

Q. Does Carteret County go over into Hyde County to fish?

A. Yes; they go all over the State. You know, the Carteret County people don't allow pound nets fished, and they come over in Hyde, Beaufort and Pamlico and fish their nets. One great trouble about Carteret County water is shallow. That is the reason they don't want pound nets fished.

Q. What do they fish in Carteret County?

A. They fish drop nets and drag nets.

Q. How about the water in Neuse River, and don't their men go from the river on the south shore in Carteret County to the north shore in Pamlico County?

A. I think they do. The Carteret County people in the last legislature were the cause of most of the trouble.

Q. If it were necessary to impose a tax to carry on the operations of the Fish Commission, have you any idea of the proportion of that tax you would be required to pay?

A. I suppose possibly 25 per cent of it.

MR. HOWARD.

It has been several years since I have been down there. Our oysters were destroyed ten years ago by the hurricane. Since then the packers have gone south, and that ruined our market. We have just as many oysters now, in fact, we have an increase from what it was then.

Q. That was in what county?

A. Up over the sound.

Q. When did you say that was?

A. In the August hurricane, ten years ago.

Q. Were they covered up by sand?

A. They were rolled up and covered up. There were plenty of places they worked out afterwards.

Q. Are there not quite a number of beds down in the sound that are raised two or three feet above the sand?

A. Yes, I know of rocks that are nine feet from the bottom.

Q. What kills the oysters on these largest rocks?

A. The freshets.

Q. Are there not high beds out in the middle of the sound?

A. No; they are over two or three feet, but nothing like eight or nine feet, as you find them in this river.

Q. Were the beds that had a two or three foot rise destroyed as well as those lower down?

A. No. Those in the mouth of the river were not destroyed.

Q. You mean the marketable oyster ought to be loaded and shipped out?

A. They were destroyed, too, by the hurricane. And then the cull law is not observed. Oysters come here to this market all during the season any size, and I think the oysters ought to be allowed to go out of the State after they are culled. Plants and shells and culls ought not to be allowed to go out.

Q. To what extent are plants carried from this State into Virginia and other States?

A. Some years it is greater than others. I don't know exactly what. Last year there was not so many as the year before. Up to that time there had been a good many. They go to Ocracoke and Portsmouth, Long Shoals, Wysocking, Gull Rock and load them and carry them out. They have a great way of capping, taking a few good oysters and putting them on top.

Q. Do you think we need a more efficient execution of the present law?

A. I do.

Q. Do you think it would be accomplished by having more inspectors?

A. If you would make provisions to pay these inspectors and get the

proper ones, it would have the right effect. The Oyster Commission does not collect enough to sustain itself.

Q. You think they ought to be allowed to sell the little oysters?

A. I don't think the little ones ought to be allowed to go out of the State.

Q. How long since the cannery was abandoned here?

A. It has been about five years ago. The reason of that, all those fellows have gone south and established canneries, and use the coon oysters, which they can buy for 10 or 15 cents per bushel.

Q. When those canneries were there, did they take oysters of all sizes?

A. All sizes, mussels and all.

Q. Do you think that had a bad effect on the beds?

A. Not at that time. It would have had a bad effect on them if they had kept on at it. At the time they were taking them they were nothing but a lot of mussels. The bed was overcrowded. I should think the tonging season should open sooner, say the 1st of October, and the dredging season, it would be better to give another month in the year. If you want any of the oysters to go out of the State for planting purposes, let them be properly culled.

Q. Do you know of any beds that have been destroyed by this neglect to enforce the culling law?

A. No, not of my own knowledge. Here and down around Ocracoke and Pamlico I know they have caught them up at times and carried them to Morehead City. The cull law has not been observed down that way at all.

Q. These vessels which take these oysters, how do they go?

A. They go through the canal.

Q. We are supposed to have inspectors at these canneries, are we not?

A. Yes.

Q. What about fish?

A. I am no fisherman. I think a closed season for the salt water fish from the 1st of May to the 1st of September would be a good thing.

Q. From your experience in the oyster business do you think it would be possible for an inspector to detect uncultured oysters if they put culled oysters on top of a great many barrels?

A. If he knows his business he would. If he was down around in that country he would know the way the dredgers were doing, and how they were handling them.

Q. Would it be possible for him to go aboard the boat and detect it without any amount of labor?

A. It would take some little labor, but he could detect it.

Q. If he could shove ten or fifteen bushels from the top he could detect the unculled oysters?

A. Yes, usually.

Q. Do you think that a law compelling the master of the vessel to turn over his cargo for inspection would answer?

A. I should think he would have a right to inspect the last one of them if he wanted to.

Q. What is your opinion as to the success of those planting oyster beds?

A. We have very poor planting lands on account of the current. We have a few places down on the coast. There are a few places that planted oysters will grow.

Q. Are there any places where oysters have been planted where they were not already growing?

A. Judith's Ferries was a natural oyster rock ever since my recollection. That is about the only place I know where oysters have been planted on a natural oyster rock.

DR. PITT.

We have not got any shad down where I live. They have been getting less and less for the last ten years.

Q. To what do you ascribe that decrease?

A. They catch them up before they get there. Up in Tar River they catch them with the seines. When it is high water they will go clean up beyond the falls. They spawn in those creeks. There is a creek running right back of my house where they spawn. It has not been over two weeks ago they caught two she shad up above Tarboro ready to spawn.

Q. What do you think of making the closed season longer; instead of taking from Saturday morning to Monday morning, have it from Friday morning to Monday morning?

A. I am in favor of a closed season. I think it would give all a better showing.

Mr. Swindell:—Mr. Sterling says he thinks there ought to be a closed season for salt water fish. As a matter of fact, there are more salt water fish caught during the months of May and June. If you go to work and deprive the fishermen in the sounds from fishing during those months you take away all their profit in fishing.

Q. What time do croakers spawn?

A. They don't spawn here at all.

Q. What time do trout spawn?

A. May and June.

Q. Have not those fish been scarcer in the last four or five years?

A. That is true, and we have had more fresh water in the last four or five years than ever before.

Q. Don't you think that they spawn during the months of May and June?

A. Mostly.

Q. Then why not protect them then?

A. If you don't catch them then you don't catch them at all.

MR. LATHAM.

I am not a practical fisherman, and know but very little of fish interests. All that I have been able to know about it is what I have heard the citizens say. I have been instrumental in the closing of four or five creeks in the county for five months in the year.

Q. What creeks are they?

A. Blount's Creek, Wright's Creek, etc., during March, April, May, June and July. All the fishermen are willing and want a closed season. The only difference is in the time. Most of the creeks on the south side of the river are closed during the entire year. As far as I have been able to understand, it has given satisfaction.

MR. TAYLOE.

I know very little about fishing except this: I am impressed with one fact today. I do not think I ever saw as many as three fishermen or dealers who agreed, but today they all agree that the State ought to protect the fish and oyster industry. I could not say anything that could add to what has been said. I believe that the people of this county realize the importance of obeying the fish laws, and they realize that the State should help them. The people in Edgecombe and Pitt counties do not depend upon fishing for their livelihood. We have hundreds of people on the banks of the Pamlico who make their living out of fishing. Another proposition is the bridges. When I was a boy growing up it was a great sight to go down on the bridge and see them catch two or three sturgeon every day. It seems strange to me that a fish as large as a sturgeon should be turned back. They have the best farms in the world in Pitt County, and they should farm and leave their fishing to us.

BEAUFORT MEETING.

JULY 19, 1909.

Meeting called to order by Chairman, who explained object of the meeting.

MR. JAMES M. CONGLETON.

Q. How long have you been fishing?

A. All my life.

Q. You fish with a small net?

A. Small net.

Q. How large is the net?

A. The law allows us to fish 225 yards.

Q. What size of mesh?

A. All the way from an inch to as large as you want it.

Q. Anything smaller than an inch?

A. No, that is the law.

Q. What class of fish do you catch?

A. We catch all kinds of edible fish.

Q. Any fresh water fish?

A. No fresh water fish.

Q. Where do these fish breed?

A. Breed in the sea; some in Newport River.

Q. Do they have any special breeding season that you know of?

A. Yes; I think I can define some of the different classes of fish.

Q. What would be the result of having a Fish Commission established in this county?

A. I think it would be beneficial to our county.

Q. How would you suggest that you have it?

A. I don't know.

Q. Do you think a tax ought to be raised on nets?

A. I don't think we ought to pay taxes at all. Let it stand just like it is rather than have a tax.

Q. Where do you do your fishing? In what part of Carteret County?

A. In Newport River, North River, and Core Sound.

Q. Do you catch shad in season?

A. Very few; we don't have any nets for that purpose.

Q. You have gill nets down here?

A. We used to, but don't now. We use cotton altogether. We use haul nets and a two-hundred-yard seine.

Q. Do you use that net hauling up on the beach?

A. No; sometimes we haul to the sound. When we haul mullets we generally haul to the sound.

Q. What has been your observation? Has there been any decrease in the number of fish caught in these waters as compared with ten years ago?

A. No, I don't think so. I think we have more mullets this summer than in ten years.

Q. How is it as to the shad?

A. We don't fish for shad.

Q. How is it as to the menhaden or fat-back?

A. I have fished for them for ten years. Some seasons we have a plenty and others they are scarce.

Q. You think there has been any perceptible decrease?

A. No, I don't.

Q. What are the principal varieties of fish caught here?

A. Trout, hogfish, spots, bluefish, sheepshead, mullets, flounders, etc.

Q. You don't fish especially for the bluefish and trout? The same parties catch all kinds of fish?

A. Yes. A variety is caught in each net. Sometimes we catch nearly all varieties at one haul.

Q. What time do you commence fishing?

A. We fish on the tide all the year round.

Q. Why did you leave out the winter season formerly?

A. We made our living in the nine months, and now it takes twelve months.

Q. You did not fish during the winter because of the hardship in fishing?

A. Yes, because of the hardship of the winter.

Q. Don't you get more money for the fish now than you used to get?

A. No, I think not; not for the fish we catch.

Q. Would you recommend a closed season any part of the year when there should be no fishing in this county?

A. I don't think I would, but there are some places that I don't think they ought to be caught at some time of the year.

Q. To what places do you refer?

A. Around the inlets in the spawning season. At Beaufort Inlet there are quantities of fish caught that would spread over in the sounds and rivers, but they don't get there.

Q. In what kinds of nets do you catch the fish?

A. Haul nets.

Q. Can you haul these across the inlets—along the shoals inside?

A. Not across the inlet, but along the beach.

Q. How close to the inlet can they fish these, and how close do they fish them?

A. Right around the point.

Q. Is the law enforced at the inlet?

A. I don't know what to say.

Q. Are you willing to say that the law is properly regarded?

A. According to my best judgment, it is not.

Q. What is the sentiment about the enforcement of the law? Do the fishermen want it enforced, or do they wink at the violation of it?

A. They would do it.

Q. Do you think it would be to the best interest of the county and the fishing if the law was enforced?

A. The fisherman is the violator. I think the intent of the law was to cut out what we call targe seines. We have no system about our nets.

Q. What is a targe seine?

A. It is a seine hauled to the beach by men, horses, etc.

Q. Are they no longer fished in this county?

A. No.

Q. How long are your lines?

A. I suppose half a mile.

Q. That net would sweep half a mile from the shore?

A. Yes, half a mile from the shore.

Q. Is there any limitation placed by law on these?

A. No limitation placed by law.

Q. Is there any tax imposed on these nets?

A. No.

Q. Is there any tax imposed on the fishermen?

A. Not for fishing.

Q. What is the life of one of these nets?

A. It is owing to the season that we put them in the water. Start a net in the summer season, it will last sometimes two and sometimes seven months. In the winter season, sometimes twelve months.

Q. What is the cost of one of these nets?

A. They cost from \$30 to \$75 and \$100.

Q. Do you catch any considerable number of small fish in these nets?

A. No; we generally have a haul net one and one-fourth inch bar.

Q. Are they the same mesh the entire length of the net?

A. All the same size, length and depth.

Q. If you catch a considerable number of fish in these nets, are they small ones?

A. Yes.

Q. Is it ever necessary to liberate them?

A. As a general rule, if the fishermen haul the fish to the shore, they generally throw them on the shore.

Q. In hauling them up on the beach, is there a large proportion of them killed?

A. No; sometimes you get a peek, sometimes a bushel.

Q. What is the smallest size fish that is marketed?

A. What we call an inch bar, an inch fish.

Q. About how long would that fish be?

A. About six or seven inches.

Q. What would you think of a law that would prohibit the purchase of a fish that size?

A. I think it would damage the poor people of Carteret County.

Q. Don't your small fish bring a very small price?

A. We get the same price for the small ones as for the large ones.

Q. What do you get for mullets?

A. From \$2 to \$2.50 a crate of 100 lbs. In this season of the year they are smaller than later on.

Q. Do you use these nets for beach fishing?

A. Not for beach fishing, but for sound fishing.

Q. By beach fishing you mean on the outside?

A. We use them on the inside, too, in what we call stationary fishing. They generally go out by the middle of August and set until the middle of November.

Q. How is the supply of bluefish? Is there any appreciable difference from what there was ten years ago?

A. Yes, I think there is.

Q. Do you get any large ones in these waters?

A. Yes; get some two and a half feet long.

Q. How is it with the sheepshead? Is there any difference in the supply of these?

A. The sheepshead is a scarce fish with us anyway.

Q. Do you think there are as many here as there were ten years ago?

A. I don't see why there should not be. We catch about the same. The pound has something to do with taking up the sheepshead.

Q. I believe there are no pound nets allowed to be set in Carteret County?

A. No, we have no pound nets.

Q. Do you fish pound nets in other counties?

A. I am unable to answer that.

Q. Do you know anything about oysters?

A. We catch oysters sometimes.

Q. Do you dredge?

A. No. I have heard the oystermen talking about it last year. I heard them say last year there was an increase, and they laid it to the fact that the Legislature shortened the time.

Q. Are there any sturgeon caught in these waters?

A. We catch some inside.

Q. Are there any regular sturgeon nets fished on the outside?

A. No.

MR. M. L. LEE.

Q. How long have you been engaged in fishing?

A. I am a natural born fisherman, both fin and shell. I have two things to put before you. I am directly interested in the fishing in eastern Carteret County. I want to say to you what is going on now and what would be best for us. As you are all aware, Oregon and Hatteras inlets control our fish. All the fish we get comes in those inlets. All the fish we have come from the sea. In respect to the fresh water, we have the pound net fishing, the purse seine fishing, the drop net fishing, the set net fishing and the haul net fishing. I will speak of the pound nets first. Today at Oregon Inlet, I suppose there are just 100 pound nets set across the mouth of the inlet and within five miles of the inlet. There is where they set an inch bar.

Q. Is that under the Fish Commission?

A. I was speaking of Oregon and Hatteras inlets. Five miles, I think the law is. Those channels need five miles from the inlets where the nets are set.

Q. Is there any law prohibiting that fishing?

A. I will show you later on. The law that we have now they say is to set the small mesh nets, and the fishermen claim that they can not set the larger mesh, not for the reason that the little fish get in. These nets are there and they are taking about one-tenth of the whole eastern part of Carteret County and monopolizing the privileges of nine-tenths. In other words, fifteen years ago, or even ten years ago, the fishermen fishing the hand nets and drop nets could make wages; today they can not make wages. At that time they were making four and five dollars a night and now they can not make more than 50 cents or a dollar. There is a great decrease in the fish. What I want to say about the fish, they come in the spring time and they are after them even in June and July, and in the spawning season. They are taking everything from the bottom. I was there one time on one occasion, about six years ago, and a boat came alongside of my boat with a boat load, and they would take a big dip net and bale out a few and throw the rest overboard. This was in the pound nets and they are breaking up the other common fishermen all along the coast. On the other hand I think it would be a good thing to prohibit the pound from setting there in the springtime and make 1 1-2 inch mesh and let those pound nets come up in the broad waters of Pamlico Sound. I think not more than three nets should be allowed to set in a row. Take one man with one net whose cost was not more than \$300 and another man with a bank of three nets will

come in and crowd his net right up close to the man with one net and this causes a wrangle all the while. They cut off the rivers and tributaries and everything. If they stop up these places we can not get any fish on the inside. That is the condition which pound net fishing is in today. We are willing to be taxed if there is a law to see that every man fares alike. It is not worth while to make a law of that kind unless you put a man to preside over it. You make 1 1-2 mesh and they will use that for, say six months, and pretty soon a fellow is in with 1 1-4 inch mesh. We think these pound net men ought to be made to come up in the sound and give the other fishermen a chance. Bring him up here, or at least stop him from fishing at the inlet. If you catch up the young fish we can not have the older ones. It takes four times the little fish to weigh equal to a big one. He should be left alone. As to the drop net fishing and the set net fishing I don't know any amendment to be made to that. I think they ought to be able to fish those all the year round. The fyke net sets in the fall and catch the blue fish and trout. That class of fishing never can break up the fishing on the inside of the inlets. So far as the purse seines are concerned, I don't know anything to say about that. We have a decrease of all kinds of fish today.

Q. Are there any buoys or marks by which these fishermen are guided?

A. Yes.

Q. Do they change them?

A. They are guided by shores, islands, etc.

Q. Neither the State nor the county has established any marks?

A. Nothing more than what we have on the shores.

Q. There has been no boundary marked out by the Fish Commission?

A. None at all.

Q. Do you think there ought to be a closed season as to the time when these nets should be taken out?

A. Yes, I do.

Q. What time would you suggest?

A. I don't think we ought to fish in May, June, or July. I think the fish ought to be allowed to come on in during those months. This as regards the pound nets.

Q. Do you think they ought to fish gill nets or any other kind of nets across the inlet?

A. They ought not to fish any kind at the inlet.

Q. Do you think that it would be to the interest of the fishermen along that section if the State were to establish buoys all along that section and then see that they were observed?

A. I do.

Q. Don't you think you ought to be willing to pay for this?

A. I do. I think we ought to be willing if it is carried out.

Q. What is your idea as to why the laws have not been carried out?

A. The people, I don't suppose, have taken the interest they should.

Q. You think there should be a special officer with a sufficient number of deputies charged with the enforcement of these laws?

A. I think so. I think there ought to be some individuals to go around the shores and see that the laws are carried out.

Q. Would the pound netters be benefited by the way you propose?

A. They would.

Q. In what way?

A. As it is now they have a wrangle in fishing all the time. Take a man with two or three nets and let another man come in on each side of him with two or three rows of nets, and he can not fish. They have a law now that they should have a certain size mesh net. There is nobody to look after it. Some want to obey the law and some want to violate it. The ones who want to obey are taken advantage of by the ones who want to violate. I think they would all be better satisfied to have protection along that line.

Q. Is there any law that nets can only be fished a certain distance from the shore? I understand that a number of Carteret County fishermen fish pound nets in Pamlico County?

A. Yes, they are not allowed to fish pound nets in Carteret County. I think it is a thousand yards out they fish.

Q. If that law was enforced the man with only one net as well as the man with three pound nets would have the privilege of going out the thousand yards from the shore? If that thousand yard law was enforced every fisherman would have just as much privilege as another?

A. The fish run off from shore to a certain extent. If you block the way with a lot of nets, way out in the sounds, then the man just above you doesn't have any chance, especially when the first man has the best place.

Q. Your idea is not to fish more than three nets in a line?

A. My idea is not to fish more than three nets in a line and then you don't cut off the whole thousand yards.

Q. Suppose you increase and double your lead?

A. They will not lead that far. It gives the boatman a great privilege, too. A boatman can not go across the pound nets without cutting them up, and they go out in the middle of the river.

Q. Don't you think it would be better to change your number of yards from the shore?

A. If you don't fish more than three pound nets from the shore, you

could not get on the fishing bottom. The distance of a thousand yards is all right with three nets in a row.

Q. Do you think that pound nets ought to be allowed to be fished in Carteret County?

A. I think Carteret County people ought to have some limited territory to fish pound nets in.

Q. You don't think it is any worse for a Carteret County man to fish a pound net on the east side of Neuse River than it is for him to step over and fish in Hyde County?

A. I don't think so. I would suggest the eastern part, the Pamlico Sound borders on the eastern part. You don't want any pound nets set along the coast from Portsmouth to Harbor Island. There are shores in Pamlico that you could set the pound nets without damage.

Q. What proportion of fishermen fish pound nets?

A. About one-tenth.

Q. Can not one pound net catch as much as twenty fishermen could with a small net?

A. It would catch considerable more.

Q. Don't you think it would be the proper thing for all the fishermen to put a small and equitable tax for the benefit which all should receive from the law?

A. I do, but I don't suppose that the real drop net fishermen would think so.

Q. If a man is assured that he will have proper protection he ought to be willing to pay a small tax for that protection?

A. If they can see the point where these pound nets would be removed from the inlets and keep them from catching the small fish, they would be willing. These people in the eastern part of the county have spent their all in the pound nets and to take that privilege away from them entirely would be too much. I don't think we could have any market for fish if it was not for the pound nets, especially in warm weather. The thing to do is to limit the fishing.

Q. Do you think that without the pound nets they would not have proper refrigeration to get the fish on the market?

A. No.

Q. On the other hand, would they not be willing to pay half of the value of the property rather than lose it all?

MR. ABERNETHY.

The trouble about it is this, gentlemen, and I want the committee to understand my position. We have a great class of people dependent upon this class of fishing for a living. My idea is if you let these little nets run after these little fish—I can readily see where

you have these large fisheries where a man can go and undertake to regulate these and enforce the law, but the trouble is we have probably in this county one-tenth of the fishermen who are pound net fishermen who fish out of the county. The sentiment is so strong that no man could stay in this county and fish a pound net. When you go into these people's pockets and take their bread and meat, you come very close to them. There are a great many people in this county who have this idea, that the waters ought to be free altogether. It is not right, as we see it, to tax people to support one man. Before they had the Fish Commission in the other counties they would take a pound and put in the sound and put a lead clean across the sound. The point I want to make is the difference between the different kind of fishing. There is no disposition on our part to take the privilege away from any one, but the thing we most seriously object to in this county is that you are calling on nine-tenths to support what one-tenth has.

Q. Do you think that a good many find on the first of June that the nets are worn out and not worth listing?

A. The fishermen are a class of people that list everything they have.

Q. Could you give me an idea of the number of nets in use in this county?

A. No, I could not do that.

Q. How long is the average of the nets that are fished by these small fishermen?

A. I suppose not over 150 yards. The law does not allow them to fish over 225 yards.

Q. What would be the tax on a net 225 yards long?

A. I don't know.

Mr. Meekins:—There would be no tax on any seine under 300 yards.

Mr. Abernethy:—If you don't bother these small netters nobody could raise any objection. The point that does affect us most seriously is the small ones.

Q. How would it do to establish a Fish Commission and a Board of Directors and allow them to make rules and regulations for the different counties?

Mr. Abernethy:—The trouble about that is, you see, we are way down here in one end of this fishing territory and whenever that Board of Governors get to voting, they can out-vote us.

Q. Would it work a hardship to the people in the lower part of the county to allow pound nets in what we call the upper part of the county?

A. Yes, it would work several hardships. If you would ask our people they would say, why not take them out altogether? When you go

down and see a pound net in actual operation you can see how they bale out the fish.

Q. Would you suggest how Pamlico and Albemarle would do their fishing if you took the pound nets out?

A. They have abandoned them because they had to. It is a case where the big fellow swallows up the little fellows.

Q. You know as well as I that there is a diversity of interest and opinion about the fishing industry in eastern North Carolina. A law that would be suitable for Chowan and Pamlico and Beaufort might not suit Carteret. Now what are we going to do about it?

A. Let us alone.

Q. Is not the Fish Commissioner similar to the Oyster Commissioner?

A. Yes.

Q. How long has the present Oyster Commissioner been in office?

A. Eight years.

Q. Didn't Carteret County have a law passed that there should be no oyster dredging in Carteret County?

A. Yes.

Q. I understand that you object to the abolition of dredging in this State?

A. We think from the oysterman's point of view it would be a good thing. As fishermen down here we are opposed totally to any proposition that allows one man to have more chance than any other man.

Q. Have you any idea how this State differs in that respect from other States along the seaboard?

A. I have not.

Q. Don't you regard this matter of the fish and oyster interests as a State matter rather than just a local industry? Don't you believe that it would be a good idea to establish a Bureau of Fisheries and give them the entire charge of these matters and while you pass general laws in regard to the subject, give them the power to make particular laws for each part of the State and to maintain the general law to suit the different localities?

A. We have the great Agricultural Department. That is not sustained by a specific tax on the farmers. You can not build up an industry by taxing a weak thing to build it up. The trouble has been that our Oyster Commissioner, the Oyster Commission has not sustained itself because the State, instead of coming out as a great State and protecting this industry, they put a tax on the oyster that is going down, and the result was that it was put in a hole. It is not because the law is not enforced, but it is because you can not raise sufficient revenue to maintain a Commission. If you gentlemen would recommend to the State of North Carolina that there be a department

made in this State where you have a Fish and Oyster Commissioner combined and get some man like the Commissioner of Agriculture or Secretary of State or some other department of State * * * The oyster industry is not what it used to be is admitted. It is not because of the fact that we have a Commission, but it is because of the fact that you have undertaken to raise money from a thing that is being depleted. The thing that would make more oysters in North Carolina than anything else would be to plant shells throughout the waters. It undertakes to lease these oyster beds. If the State would spend its own money for it and go ahead and cultivate that ground like a farmer, you could rent it out for enough to maintain it. I can readily see why it is better to have some man at the head of these various institutions, but when you undertake to put it on the little fellow * * *. Our taxes in Beaufort are over 2 per cent right now.

Q. Don't you believe that it would be a good plan to take the money from the general treasury, even if the industry could not support itself?

A. I don't know except if we had a Civil Service. The trouble about it is this: we have the political side to consider.

Q. Don't you think that the people of Carteret County ought to be permitted to set pound nets within certain distances of each other and in certain parts of Neuse River and don't you think that the majority would agree to that?

A. I don't believe they would. I have asked some of the bitterest opponents of drop nets in this county if there could be any objection to setting pound nets on Neuse River from the first of January to the first of May, and not a single one would object to it.

Mr. Lee:—There never has been much of a contention about the pound nets in Neuse River because they are so far removed from our fishermen as a rule.

Q. Do you know just when the south shore of the Neuse was cut off from Craven and made a part of Carteret County? Was the Neuse River a part of Carteret County when the law regarding pound nets was passed?

A. I think in '87.

MR. LEE.

I came a distance of thirty miles and left a sick child to put this story before you.

Q. The State having control of these waters, how do the fishermen decide among themselves as to where a man shall place his nets?

A. They don't have any decision, only what they make themselves.

Q. If a man places his stakes at a certain point, do all the fishermen consider that he is entitled to fish there for the balance of the season?

A. They should, but they don't regard it that way. Some cut him off.

Q. I suppose then when a fellow has put in a net and another fellow comes along with say three nets and puts them in on either side of the fellow with one net, it causes a contention?

A. That is exactly what he does, which causes a wrangle amongst the fishermen. In regard to the pound nets the point that I have been speaking of is the difference in the different precincts. One neighborhood is opposed to another. We people in the eastern part of the county are entirely dependent upon the fishing. We don't do any farming. We are more interested in fishing than any people in eastern North Carolina. We have people who want a higher living than just the common drop net fishing, and by using the trap net he can make a better support. He devised it and should have the privilege of using it. Take the waters that I spoke of on eastern Carteret County, the shoals adjoining the mouth of Neuse River, it is not detrimental to any fishing that we have in that section of our waters. If you give them 1 1-2 inch mesh, have three nets in a row, and require a good, salable fish all the while and limit their fishing to certain months, the industry would be improved. Say, beginning fishing the first of January and take them out the first of May.

Q. Your remarks would apply to all that part of Neuse River above Core Sound?

A. Yes, we don't want Core Sound blocked up; but neither do we want the inlets blocked up. Let the fish come in and spawn in the sounds and rivers and tributaries and give everybody a chance. The way we have it now, you know the waters of Pamlico and Core are pretty close to the shoal I spoke of, and from Bay Point it extends out very near Panama(?) shore, and they are allowed to go on the Pamlico side and set off 800 yards to the point I have reference to, and still you can not set on the opposite side. It is not fair. I am speaking directly on bread and meat. From Atlantic to Ocracoke the people are interested in pound nets. I suppose one-tenth of them are, about 800 in Atlantic, 200 in Hog Island, and some in Ocracoke. Those people are interested in pound nets and they want some privileges in Carteret County to set them, if you will limit them as to the size of the mesh and make a time for setting them. So far as to making the Fish Commission, it would be much more satisfactory if the State would provide for that.

Q. What do they pay the day laborer for fishing?

A. For fishing the trap nets, about \$30 per month; some more and some less.

Q. Is there a large business done in this county of parties furnishing nets to fishermen to be fished on shares?

A. No; I think not.

Q. Do you catch shad?

A. Not many white shad. These fish come more on Hatteras than Ocracoke. Last year they did pretty well in Ocracoke channels during one time. It is a new fish there.

Q. I suppose the shad that go in Ocracoke go up Neuse River?

A. Yes; up Neuse River and Pamlico. What I know about the oyster is this: I have dredged oysters in Pamlico Sound four years and I have oystered twenty years more than that. The present oyster law is very good if we had the means to carry it out, but like it has been for the past two or four years the patrols have gone on at the proper time and the season for oystering is pretty well laid out and if we had those laws executed to the extent of the law it would be very good; but not having the means to hire men to put on the patrol and duly patrol the oyster beds has been very slack. The Oyster Commission comes off the 15th of March and then the people turn to the oysters and catch anything and everything from the bottom that they can, carries it in different little creeks and there he kills a lot by putting them in; others carry them to market after the law expires. The Virginian comes in here and carries our oysters to Virginia and the people start in anew after the patrol is taken off. There should be a patrol, in my judgment, all the year, looking after the industry before the time and after the time. I think the oysters should be culled properly. Two years ago they were allowed forty days to plant after the oyster season, and they would take the little oysters off the beds and put them in on a private bed. They say they might just as well sell them as for a fellow to put them on his private beds.

Mr. Webb:—I would say to the Committee that under the present law, even if we had the means, it does not allow us to keep the patrol on after a certain time.

Mr. Lee:—Stop dredging at night for two years. We should have some dredging. When I went into the business the oysters were just about 1 1-2 inches long and were no good, and we got from eight to fifteen cents per bushel. We worked on them four or five years and when I quit dredging we were getting forty, fifty, and seventy-five cents. We, the natural oystermen of North Carolina, oyster and cultivate those oysters, keep the little ones down, throw him back on the bottom and let him mature and sell the big ones, and we can make more out of it than we can if we stop dredging for two years.

Q. Is there any territory in Carteret County where it is practicable to dredge that any one has been prohibited from it, say for the last six years?

A. No.

Q. Is there any conflict in this county between the dredgers?

A. None at all.

Q. The statistics show that in 1901 the State of North Carolina saved something like \$27,000 from the oyster industry. Since then there has been a great decline. Can you tell us why there has been a decrease in the receipts?

A. The decrease is in the oysters and the demand for the oysters.

Q. Why is there such a decrease in the oyster?

A. We have caught practically everything off the bottom, shells and all.

Q. If you think they catch everything off the bottom of the sound, do you think it would be advisable to have a closed season for two or three years to prohibit the catching of oysters?

A. No, I don't think so. There are enough oysters on our rocks now that would come up in a little growth, and they never make anything. You have to continually cull the oysters to make anything out of it. In two years time forty or fifty oysters will come on one and smother it out.

Q. If the bottom has been cleaned off, how do you propose to protect the oysters?

A. There are enough left there for seed and there are still some shells. What I meant by cleaned off, I didn't exactly mean all.

Q. You mean that you had stripped it of the marketable oysters?

A. Yes.

Q. How did the catch of oysters this past season compare with the catch of the past three or four years?

A. I think it was a little bit to the gain. I think we had more oysters this season than for the past three or four.

Q. Can you tell me something about the prices?

A. The prices have ranged this year all the way from ten to twenty-five cents.

Q. How do these prices compare with those of ten years ago?

A. I think they compare pretty close.

Q. How do the number of oysters caught now compare with the number caught then?

A. There was ten to one.

Q. What do they get now mostly off these natural beds?

A. Shells, mussels, and little oysters that are no good.

Q. Do you know of any oyster beds in this State that have been absolutely wiped out so that there is no possibility of their being re-seeded?

A. Yes, I do.

Q. Are there many such places?

A. Some few.

Q. Are they of considerable area?

A. Anywhere from 100 to 500 yards square.

Q. What, in your opinion, ought to be done with such a bottom?

A. I think it ought to be filled over.

Q. If the State were to re-seed that bottom, what assurance would it have that it would not be destroyed again?

A. They would if it was not protected by the State.

Q. Under the present arrangement, you think it is impossible to protect those beds?

A. The vessels from other places slip in here through the canal and they go on the rock and tack and tack so as to make you think they are not getting oysters, and that night they will go out in some tributary of the sound and make you think he is dredging too.

Q. How do they carry these oysters out of the State if it is contrary to law?

A. This is after the law expires, certainly.

Q. If the Oyster Inspector were on that reef he would be able to detect that?

A. No, not at all. We have one oyster bottom or bed in Pamlico Sound that almost the whole of Atlantic used to oyster on. That has been bringing valuable oysters for the last forty years and now I don't suppose you could get two bushels a day on it and I have worked a boat there and got 400 bushels a day.

Q. Is there any reason except from lack of means as to why they have not carried on this inspection?

A. I don't know.

Q. What causes that depletion in the oyster industry?

A. They take them up, shells and all. The citizens suppose they dredge there during the night. The citizens of Atlantic go over in Hyde County and bring over shells and put on the bottoms for their own support.

Q. What amendment to the law would you suggest to protect and foster the oyster industry in this State?

A. I should recommend a patrol for twelve months. I think that a man ought to be equipped with a gasoline boat and that he patrol certain portions of water; from Piney Point to Portsmouth, say. That may be very easily protected by one patrol boat.

Q. Do you think that if the State kept up a sufficient patrol it would be enough protection so that there would be an increase in the oysters there?

A. I do. In three years time they can have all the oysters that there is any demand for.

Q. Are there any men who have planted private oyster gardens in this county?

A. I don't know about the private bottoms. Down at Portsmouth they have some planted bottoms.

Q. Suppose the State were to plant shells on the exhausted bottom and only a few would go there and dredge the oysters planted; would that be fair to the others?

A. No. We want this especially for tongs; do not want any dredging done. Want a protection there to keep them from bothering these oysters within a term of three years, and then have the cull law enforced. You have to have a man to preside over it to see that he does do it.

Q. If the tongers are allowed to do business on this bottom, then the State would be planting these oysters for the individual. What license ought the tonger to pay for that privilege?

A. They ought to pay a license of not less than \$2.50 to the man in the boat.

Q. You think that it would be fair if the State were to pay for planting these oysters for these people to pay a license for oystering there?

A. They would be the proudest people in the world to do it.

Q. You were dredging about 1902. What did you have to pay at that time on the dredge hook?

A. I paid about \$2.50 on the gross ton.

Q. Since 1904 that was reduced to \$1.50?

A. \$1.50 in 1904.

Mr. Webb:—The license tax on the tonger from 1903 was reduced. I want to say for the benefit of the Committee, the past season I think the total of the licenses issued to dredgers was somewhere between \$850 and \$1,000, and in this county alone in 1903 I think I turned in about \$1,000 in one month, the opening month of the season. Now it is down to about \$1,000 for the whole State. That has been caused largely by the demand. There is a law that required a man to procure license from the clerk of the court in the county in which he lived so that we could tell how much each county paid in. Mr. Meekins was clerk of the court in Dare County at that time. They had to pay the clerk twenty-five cents for issuing the license.

Q. Do you think it is better for the clerk of the court to issue the license?

A. I don't know as it is any better. The twenty-five cents license on the tonger went to the clerk of the court prior to 1903; since that time we have been issuing the licenses, which went into our revenue. I be-

lieve it is expensive for the State to issue these licenses, because it often costs more than twenty-five cents to find a fellow.

MR. RANDALL.

I think the State of North Carolina needs a Fish Commission, and needs it for the whole State. I moved to Morehead City in 1870 and went into the fish business. In fact, I was the only one started at that time in the business. I have been handicapped by these local laws all my life. One fellow wants to keep the other fellow from doing what he wants to do himself. The fishermen themselves have their nets and double them. One part of the county wants one thing and another part wants another, and while I was in the Legislature of 1905 it was a continual wrangle. My opinion is that we need a general law for the whole State. Take the people down east, these fellows say you can't set drop nets here and go over in Pamlico County and set their nets.

Q. What is your idea about that? Do you think it would be advisable to allow them to set pound nets in certain parts of Carteret County in certain times of the year?

A. I don't know how you are going to suit our people at all. I am in favor of drop nets myself. Our people don't want them and they have to be educated before they do want them.

Q. Do you think we ought to have a closed season as to fishing for any particular fish in these waters?

A. Yes, in my opinion, a fish that hatches in the rivers and lakes can be destroyed if not protected. The mullets that spawn at sea and bluefish, I don't think you would destroy them at all.

Q. What could you tell us about oysters?

A. In my opinion, ever since the Oyster Commission has been established they should require every man who takes a bushel of oysters out of the sound to put back a bushel of shells.

Q. What method of enforcement would you have for that?

A. I do not know.

Q. What do you think of the suggestion that where these bottoms have been exhausted the State should undertake to replenish them?

A. The State ought to make the people who have the privilege of getting the oysters replenish them.

Mr. Webb:—It seems to me the shell belongs to the one who buys the oyster.

Q. How would it do to say, provided a man returns so many shells to the bottom he shall be exempted from the license?

A. I don't know. That would suit me. Down at Portsmouth I thought at one time there were enough shells for me to ship shells for twenty years. It is a blowing sand shoal now.

Q. Can you make some suggestions to the Committee as to what they should do regarding these matters?

A. I recommend that you people get together and make this thing a State affair.

Q. Do you know whether many fish go through Ocracoke Inlet that are kept down in Core Sound? Do you think any of the fish that are caught in Core Sound have come through Oregon Inlet? Would the protection of Oregon Inlet be of interest to the fishermen?

A. I don't know. I think the fish that come out of Ocracoke Inlet not only go up Neuse River, but up Albemarle Sound.

Mr. Lee:—We get all our fish through Hatteras and Oregon Inlets.

Q. The enforcement of the law relating to the matter of keeping open Oregon and Hatteras inlets would be of interest to the fishermen in the extreme eastern part of Carteret County and also to the fishermen on Core Sound and up Neuse River?

A. Yes.

Q. Do you think it would be of any advantage to the fishermen in the northern part of the county who live on Neuse River if the government should place in the Neuse from five to ten to fifteen million shad each year?

A. Yes, it is bound to benefit the people, even down here.

Q. You think that the hatchery is a pretty good thing for shad?

A. Yes, I do.

Q. Coming to your statement as to the enforcement of the law in other counties outside of Carteret and the putting of young shad in their streams outside of Carteret, would it not be of benefit to Carteret County?

A. It is bound to be. What is a benefit to your county is bound to be a benefit to Carteret.

Q. Do you think it would be fair to ask the fishermen of Hyde, Pamlico, and Craven to be taxed so that we could get a hatchery on Neuse River and yet leave Carteret County out? Do you think it would be fair to tax one set of people for the benefit of another?

A. I am willing to bear my part of that tax.

MR. POTTER.

I am not a fisherman. The fish business or fish interests are as diversified as any other business of North Carolina, and a law that is applicable to Carteret could not be made applicable to Chowan or Pasquotank or other counties to the south of us. Carteret County has not the depth of water in it that others have and yet it extends over about ninety miles of water. I have been engaged in the fish business for thirty years. I commenced before the first pound net was set in North

Carolina and was instrumental in putting in the first pound net. I have seen that pound net destroy more fish than have been caught in North Carolina since. I have seen them brought in and carried to the guano factories in loads. They did away with pound nets down here and then started long seines. Since that time they have instituted another kind of fishing called purse seines. I have seen these bring in fish that would have been worth a lot of money if allowed to grow.

Q. What mesh would you suggest?

A. I would not suggest any, because I don't think you can make a law to be enforced against it.

Q. What in your judgment would be the proper mesh?

A. I don't know. I think the idea would be the establishment of a Department of Fisheries with the Fish Commission, appointing without any reference to party lines, and let the employees of that department be under Civil Service and then require any man or prohibit any man from having in his possession any fish under a certain size or width. I got Mr. Bowers to send me 500,000 young shad. I put them up in Newport River the next season. I can't tell you what number of them were brought back of that (measuring hand) length. They were brought back as herrings. We had some few shad the next season after. Mr. Bowers wanted a report on it and I told him the results. He agreed with me in saying that the shad we had that year were not from the fry that we put in the year before, but that it was a sporadic run. I have no objection to the small mesh net, but I should say they should not catch a fish of a certain kind under a certain size. We have a law which says you can't catch fish within the three mile limit; it is a good law, but how would you enforce it? It looks to me as though the problem might be solved by regulating the size of fish caught and making it applicable to the whole State. I have listened to Mr. Lee's statement with a great deal of interest. All migratory fish that come in this sound go through Pamlico and Albemarle sounds and their tributaries to spawn during the summer months, and the only time they are caught in Carteret County is when they are going through. If the weather is seasonable or warm the speckled trout come in in February, but the other fish come in in March or April.

Q. You were speaking of not permitting a man to have a fish under a certain size in his possession. If a fish goes into his net under this size what is he to do with it?

A. They could avoid it to a very great extent. Some would be killed but the quantity would be very small as compared with those killed now. In a pound net the number destroyed is so very great.

Q. Suppose they have a mesh of four or five inches?

A. It has been said by the fishermen that they could not use them unless they used a very small mesh, because of the fact that the sharks would destroy the nets.

Q. If it were made unlawful to have a fish under a certain size in your possession, would that not have a tendency to make them use nets of a larger mesh?

A. It would do it and you would have a better supply of fish than you ever had.

Q. If he can not dispose of the small fish they would just be a trouble to him?

A. He would not catch them. That would put every man on a par.

Q. What would you suggest as to your idea of the proper sizes of the different fish that would be allowed to be used?

A. A trout ought not to be caught under 13 inches; as it is he is caught 8 inches. A butterfish is a small fish that does not grow over six or eight inches long. Spots and gray trout, same size for each. I don't know as I ever caught a spot over 6 inches. Mackerel, not under thirteen or fifteen inches. Croakers, it is too common a fish to be regulated. Bluefish, about the same as the trout; might run 12 inches. Sheepshead, one weighing 3 pounds. White shad, five to six pounds.

MR. DYE.

I am in menhaden fishing and fish mostly on the outside.

Q. What is your idea in regard to permitting pound nets to be set on the south side of Neuse River in Carteret County?

A. I am not a pound net fisherman. My experience is that they are destructive of fish.

Q. Do you think that was caused by the manner in which the fish are taken from the nets?

A. Yes.

Q. Do you handle any other fish at your factory besides menhaden?

A. No.

Q. None are offered there for sale now?

A. No.

Q. What suggestion can you make as to the amendment of the law so as to foster and protect these industries?

Q. For the menhaden?

A. Yes. We don't like to take the small menhaden. We stand against our own fishermen catching them. We did have a law passed not to allow anything less than a 2 inch mesh, but Brunswick County had it amended so that they are exempted and they come up to our door and take the small fish.

Q. Do you think that law ought to be repealed or apply to all the counties?

A. I do.

Q. You think really for the best interest of the fishing industries it ought to be repealed?

A. Yes. No, I think the law ought to stand, but the exemption should be taken from Brunswick.

Q. You are of the opinion that there ought to be a general State law in regard to fishing?

A. Yes.

DR. PRATT.

There is a resolution I would like to introduce before this meeting closes. It is on account of the boat we have been having from Edenton to Washington. I would make a motion that the thanks of the Committee be extended to Captain Nelson and the other three members composing the crew of the *Atlantic* for the courtesy shown the Committee.

Judge Graham.—I move a similar resolution to Commissioner Webb, through whose instrumentality the boat was furnished the Committee.

The following resolutions were passed:

Resolved, That the sincere thanks and appreciation of the committee be extended to Captain John A. Nelson, Mr. Thomas R. Nelson, Mr. James Roberson, and Mr. T. C. Willis of the *Atlantic* for their uniform courtesy during the trip from Edenton to Washington.

W. C. NEWLAND,
Lieutenant-Governor.
A. W. GRAHAM,
Speaker of the House.

Resolved, That the thanks of the committee be extended to W. M. Webb, Oyster Commissioner, for his courtesy in placing at the disposal of the committee the *Atlantic*, belonging to the Oyster Commissioner, and for his courteous treatment while in Morehead.

W. C. NEWLAND,
Lieutenant-Governor.
A. W. GRAHAM,
Speaker of the House.

Resolved, That the sincere thanks of the committee are hereby extended to Mr. Theo. S. Meekins for the valuable services he has rendered the committee during their trip.

W. C. NEWLAND,
Lieutenant-Governor.
A. W. GRAHAM,
Speaker of the House.

NEW BERN MEETING.

JULY 21, 1909.

Meeting called to order by Chairman and object explained by Senator Travis.

MR. R. A. WOOD.

Q. How long have you been engaged in fishing?

A. Ever since the surrender. When we began fishing around here there were seventy-five or eighty drag nets and we had plenty of fish. If we had bad weather we could not catch fish. All stationary nets fishes all night and catches them gwine and coming—that is, pound nets. High tides we can not draw a haul net and fish have a chance to go.

Q. Do you think the pound nets have done the damage?

A. When pound nets were put in this river we got all broke up. There used to be fifty or seventy-five boats with drag nets, and now there are not over fifteen.

Q. Are pound nets fished in the waters of Craven County?

A. Pound nets are not fished in Craven County, and have not been for some time, but in Pamlico. They are now fished according to law from the mouth of the river to Wilkinson Point.

Q. Is there any limit as to how far the nets can be fished?

A. I don't know.

Q. Your idea is that pound nets ought not to be fished?

A. Pound nets ought not to be fished at all in the small river.

Q. How about in the sound?

A. In the sound they won't hurt so bad. Set forty or fifty of them pound nets in a narrow river and they catch the fish when they come up and when they start back. It also kills thousands of them and they are thrown away.

Q. Is it practicable to fish a pound net without killing the small fish?

A. Yes, if they use big meshes.

Q. I mean, after they are in the pound?

A. Yes, throw the little ones overboard.

Q. Doesn't it necessarily destroy a good many of the little fish?

A. Yes.

Q. Could that be effected if the fishermen would take care to get the smaller fish out?

A. Yes, we could get the small fish in and put them overboard, but after they get in a pound they seem to get addled.

Q. What kind of fish are you referring to?

A. All kinds of little fish: spots, croakers, bluefish, mackerel, shad, herring, etc.

Q. Is that done to any extent?

A. I believe they have stopped that awhile.

Q. Is there compost made out of the fish in this county?

A. No, not in this county. Don't catch anything now to make compost out of.

Q. What recommendation have you to make to the Committee that would in any way increase the supply of fish? What laws would you recommend and what changes of laws?

A. None; if you make them take them pound nets out like we fellows do. We have to take our nets out several days in the week.

Mr. Green:—On the Craven side you can not fish a pound net at all.

Q. Is that the law in Craven County? Have you a law in Craven that prohibits fishing certain times of the year?

A. Sometimes the weather prohibits fishing all the days of the week.

Q. In your opinion would it be well to prohibit fishing certain days in the week?

A. That would be about right. You should give them two days.

Mr. Green:—I think we have an old statute dating back in the '70's that prohibits fishing with a seine from Saturday evening at sunset until Monday morning.

Q. Is that law generally observed?

A. Not observed at all.

Mr. Green:—We had a law that no pound nets should be fished in Neuse River, and then they had a law that they could be fished on the Pamlico side during certain days of the week, but I found out from some people who live down there that that law is not regarded at all. They stay in all the week, although the law said they should be fished only certain days in the week.

Q. Does that apply to pound nets?

A. Yes.

Q. Is there any practical way of enforcing that provision of the law?

A. I do not know.

Q. Would it be necessary to have an inspector there every day of the year to see that it was done?

A. Yes.

Q. How could you go about that?

A. I don't know.

Q. Could any one passing along, without actually examining the pound, tell anything about it?

A. It is simply a question of dropping the funnel. He would have to go and examine each pound.

Q. Are your waters under the supervision of the Fish Commission?

A. I don't know.

Mr. Green:—No.

Q. Do you think it would be advisable to have the Fish Commission supervise each county in the State?

A. I think we ought all to be treated alike, not let some fish big mesh nets and others little mesh nets, and some catch little fish and put them on the market and reduce the price for others. I fish 1 1-2 inch bar and can not catch little trout and bluefish and herring.

Q. What is the size of your net?

A. Thirty yards in the lead.

Q. What is the size of the pound nets that are fished down in the sound?

A. About 1 3-8 or 1 1-4 inch.

Q. What kind of fish do they catch?

A. They catches all kinds, grey trout, bluefish, croakers, spots, mackerel.

Q. Are they the same pound nets that they fish for shad?

A. Same ones.

Q. When you say 1 1-2 inch, do you mean 1 1-2 inch extended? That is, in your seine?

A. We fish 1 1-2 inch bar now, 3 inch stretch. Gives what we call a bunt of 30 yards.

Q. Do you fish these pound nets all the year round?

A. Yes. Fishing down below catches them all in the pound nets, down below at the inlets. Fish don't have much chance anywhere.

Q. What would you think of a provision preventing any one from having in their possession a fish of a certain size?

A. That would hardly work out. If you put them in the boat they won't live; if you take them out and throw them overboard, it will be different.

Q. Suppose it was against the law for a man to buy or sell a trout below 9 inches; would they fish a net that would catch any smaller than that size?

A. Yes, I think it would be better to have a law to regulate the mesh.

Q. Wouldn't it be troublesome to the fishermen to catch these fish if they could not sell them? Wouldn't they use a larger mesh?

A. Yes, you catch the little mullets with the small mesh, but with a larger mesh you would catch the larger ones.

Q. You said something about the gasoline engines. What effect do they have on the fish? Do they have any?

A. I don't believe they do. They fish around the docks here with hook and line and catch them. I have been through schools of mullets

after a boat has passed. There is not but one thing that it is right to fish in our river and that is what we call drag nets. I fish only three nights a week with mine. I give the fish a good chance.

Q. Do you fish it now?

A. Yes; I fish a drop net. You can not catch them moonlight nights.

Q. Do you fish a gill net?

A. I fish gill nets and sometimes you can catch them along shore. When they get blinded you can catch them any time. He has a film that comes over his eyes to protect them and when this comes you can catch them any time.

Q. What width in the stream ought you to allow for the fish to come up the river?

A. When a fish starts up the river he goes along the shore and the middle of the river too. Mulletts go along the shore.

Q. What is the length of the net used by you?

A. I use 200 yards length.

Q. Is there any law in this county prohibiting the length of net to be used?

A. No.

Q. How many nets are used in the river above New Bern?

A. There used to be a great many, but now the fish are ketched down so. When the bridges get across they put these set nets in so thick you could not catch any shad at all.

Q. Are there any men living on the river above New Bern that engage regularly in fishing?

A. Only in the spring.

Q. How far up do they engage in herring fishing?

A. All the way.

Q. Do they catch any herring between New Bern and Goldsboro?

A. Used to, sometimes.

Q. To what extent do you think the fish have decreased in the waters during the past ten years?

A. Pretty near all; not many left.

Q. What would be your suggestion as to the best way to increase the fishing in these waters?

A. Take the pound nets and set nets out of the river. Sometimes we don't fish for three weeks.

Q. There are no pound nets used on Craven or Carteret sounds?

A. No; only down at the inlets and the fish have no chance to get up the river at all.

Q. Have you been down to Ocracoke Inlet in the last year or two?

A. No.

Q. Have you any reliable information in regard to the pound nets there?

A. No.

Q. Do you think that the pound nets used on the Pamlico side are so numerous as to affect the fishing up the Neuse River?

A. It has been my experience from fishing that more fish travel the north shore than the south shore, that is more salt water fish. The fish want to come in the river when the water is salt.

Q. Which way do the shad come?

A. Come right up Neuse unless there is something to stop him; since the bridges have been here and so many nets set along the posts, they don't come up.

Q. What effect have the bridges on the fishing?

A. When a shad starts up he sees these nets and the bridges and turns back.

Q. Do you think the nets should be kept away from the bridges?

A. Yes.

Q. If that were done, do you think the bridge itself would interfere with the catch of the fish up the stream?

A. No; he will go through all right. Nothing stops him except nets.

Mr. Ives:—The trouble is that the men set their nets in close proximity to the bridge and when a fish is backing up in the night time and comes in contact with these posts he will dodge back and get into the net. Some of the fishermen tie their nets to the bridge.

Q. How far do these nets come out from the shore?

A. They are set clean across the river.

Q. What distance would you think would be the best in which to say that no net should be set across Trent and Neuse rivers?

A. Three miles or one and one-half miles or two.

Q. Do you think there ought not to be nets within three miles of the bridges?

A. One and one-half, or something like that. When you get right up in the narrow part of the river and the nets are so close, a fish can not get by at all.

Q. How wide is the river at the bridge?

A. Almost a mile. The bridge is a protection to the nets and they can be put in there as thick as they want to. The boats will not tear them up.

Q. From your observation, where do you think is the spawning ground in this river? Where do the fish that come up the river deposit their eggs?

A. Eight miles above and up is their natural spawning ground, where the water is noways salt.

Q. What do you think of this law that was passed during the past session of the Legislature (chapter 906, Acts of 1909) limiting the size of the fish that can be caught? Do you think that is a wise law? Have you seen any in the market here any less than those dimensions?

A. A spot never grows five inches long.

Q. Have you seen any of these other fish less than those dimensions on the market at any time?

A. Sometimes, but they mostly come from down below.

Q. Have you had any experience in fishing pound nets?

A. No; never fished a pound net.

Q. Have you ever seen them fished?

A. Have seen them at a distance.

Q. What would you think of a provision of the law, instead of prohibiting the fishing of pound nets, restrict them to certain parts of the river—prevent them from extending so far out in the river?

A. Not much, because a fish, when he starts up the rivers, he works along shore and will get caught just as well as if the nets extended way out.

Q. From your personal knowledge could you say how far out in the river these pound nets extend at the present time?

A. Five or six hundred yards from the edge of the shallow and I guess sometimes the shallow is 150 to 200 yards in from deep water.

Q. That would be 700 or 800 yards from the land?

A. Yes; from the land. A shallow sometimes makes a half mile in the river and you can stand out in the water.

MR. H. H. HUFF.

Q. Have you any recommendations that would improve the fishing industry of your county?

A. Pound nets are the cause of our scarcity of fish. Nothing else in the world. They have destroyed our fish. They catch them going and coming. They set them half a mile off shore and have four or five pounds in a lead.

Q. Do you think that the pound nets ought not to be fished in any of the waters of North Carolina?

A. I think they ought to be taken out of all waters.

Q. What is your suggestion, after what we have heard, that if you prevent the fishing of pound nets, that the other nets are not sufficient to supply the market?

A. They would be if we had fish like we used to have them. We used to have more fish than we could sell. I have seen the pound nets drawn in and the shad would be lying all along the docks, and they

would give them away and use them for compost. They actually used the fish down in Pamlico County on their farms. Now they can not catch them to eat.

Q. In fishing the pound nets, can they liberate the small fish, or does it necessarily kill a great many?

A. It necessarily kills a great many. If you make the meshes large the fish in the pound will force the pound. I have seen nets when they would have to get a lot of men to go down and help lift the pound up with the little mackerel meshed in the nets.

Q. In bad weather when you can not get to the pound nets, doesn't it happen that a great many fish die?

A. Yes; they drown. We had plenty of fish here until the pound nets came in use; shad were plentiful. I have sold Mr. Ives plenty of shad for twenty and forty cents apiece. Now you can not get a shad for less than a dollar.

Q. Would you recommend that the entire waters of eastern North Carolina be placed under the supervision of a Fish Commission and Board and let them make rules and regulations as they see fit to govern the different counties?

A. Yes.

Q. If they had a small tax, do you think it would be better to let the conditions exist as they are now or to have a Board of Fisheries to make rules for the different counties? Wouldn't that be the best means of furthering it so as to have a proper enforcement of the laws?

A. Yes.

Mr. Green:—In the event that a small tax had to be levied on these men, I would like for Dr. Pratt to state about what that would be for the year.

Dr. Pratt:—About \$1 on each net. Some of your fishermen would not be taxed over thirty or forty cents.

Mr. Huff:—Right here I would like to say we have a law here regarding the size of the mesh of the net. Our county has the proper size net. Pamlico County uses 1 1-4 and 1 1-8 inch; Carteret County does the same thing. I think we ought to abide by the same law. Carteret county catches hundreds of fish to our one. Those people fish from 3-4 inch to 1 inch and all sizes. I think we ought to have a little tax to enforce this law.

Q. Would it be better to repeal all laws or to have a law to protect the fish? Don't you think there ought to be a tax to pay for this protection?

A. I think we ought to have a law to protect the fish and that we ought to pay a tax, but not too much.

Q. (Dr. Pratt gives rate of tax). These are the licenses and tax fees imposed; do you think they would work a hardship on the fishermen?

A. They look pretty reasonable.

Q. What kind of net do you fish?

A. We fish a drag net.

Q. Do you recommend any change in the size of the net that should be used in this county?

A. I do if other counties are going to fish small mesh nets.

Q. You think that Craven ought to be given the same privileges?

A. The proper net is 1 1-2 inch and the law says 1 3-8 inches after tarring.

Q. What is your idea of the proper net the fishermen ought to use in these waters?

A. That is the proper net, 1 3-8 inch mesh. That would not catch the little fish. A drag net is so different from a pound net; a pound net catches everything, from little sizes up to sturgeon. Take a drag net, it goes down the river and makes three hauls probably in twenty-four hours. These pound nets are in the river constantly, never taken up except once a season, catching all the time, and they will destroy the seed fish unless something is done.

Q. How often do they fish these pound nets?

A. Every day.

Q. If they do not fish them in three days are many of the small fish destroyed by the large fish?

A. Yes; sometimes they do. I don't think that amounts to anything. You see they take those nets, bundle them down and get the fish in a bunch, pull them in the boat, little and large together, and while they are picking out the big ones the smaller fish die. They destroy thousands and thousands. I think over 15,000 pounds of small fish are brought to this market every year. It used to be that you could not sell the little ones, but now you can sell anything.

Q. Do you live in the city?

A. I live in the city. There is something else I would like to explain about the bridges. They are setting nets close to the bridges and when the water is clear at night they catch them. When the water is yellow and the tide is running hard the set nets do not catch shad; when the water is slack they catch them. I think a great advantage to the shad business would be this: that no shad shall be caught after the 15th day of April. We have shoals and in the middle of April the shad are washing out there and I don't think they ought to be caught at that time. Before the pound nets came there were two shad nets to one now and we had plenty of shad. I have seen it so a little boat could just get between the nets. We had thousands of shad up Neuse River then.

When the tide is slack they catch; when running, they don't catch. With the pound net they catch them all the time.

Q. How much of the river do you think ought to be left open in which no nets should be fished?

A. I don't know. I don't see that the way we fish destroys any fish at all. We don't catch anything but salable fish.

Q. Don't you think that the people above here ought to have an opportunity to catch the fish? In order to do that a certain portion of the river ought to be left open? What proportion do you think ought to be left open?

A. Yes. If the people will take pound nets out of the river, in the course of five years the people up the river will get more shad and herring than they know what to do with. We used to have a number of wood boats run up this river. When those pound nets first came in the river they had to take those boats and charter them to carry shad and herring.

Q. How long have these pound nets been in use?

A. They have been in use about fifteen months in the rivers, but they have been in use fifty years in the sounds. I have had some experience in pound net fishing. They have destroyed the sheepshead in Chesapeake Bay. The northern part of this river used to be our principal fishing ground, and now you can not catch them at all. I have actually had to quit the business.

Q. The south side of the river is fished from here on down to Pamlico Sound and on the north side the nets are set; what is the difference between the catch on the south and north side?

A. Two-thirds difference.

Q. Is the fresh water more on the south side of the river than the north?

A. Yes; the fresh water often confines itself more to the south side of the channel than the north.

MR. IVES.

I went into the fishing business in 1874 at Beaufort. In those days there were large quantities of fish caught in close proximity to the docks. It was not necessary to send any boats away. There were more caught than needed. There were probably many more fish shipped in those days than now. In fact, in North Carolina New Bern and Beaufort were the principal fishing points. This section furnished nearly all the fish consumed in the south. It was no trouble for the dealers to get at that time all the fish wanted. The waters were teeming with fish. They were furnished to the people in the city at very low prices. If the same twine was fished in the waters today as was fished in those days I am

satisfied that the Atlantic and North Carolina Railroad could not carry the fish away. Today it is almost impossible to get fish enough to supply the local markets. Norfolk and some other points in Virginia today ship more fish into North Carolina than are furnished by the dealers in North Carolina, when thirty years ago we furnished all the country.

Q. Do you think that is by reason of the completion of the railroad from Norfolk and Edenton and Elizabeth City, and giving the people in these waters closer communication with Norfolk than their own State?

A. That has something to do with it, but it is more the quantity of fish that they get through our local trade that affects the quantity we get here. We have good trade and good orders, but can not supply them. I have bought, principally for my own trade, which is now very small, fish caught mostly in Carteret County several years ago, and now I only do a small business in here and I presume I now get one-fourth of my supply from Norfolk. I used to buy herring here for fifty and seventy-five cents a thousand, and during the last two years they were \$5 a thousand. That is the condition.

Q. That is the condition; what is the remedy?

A. Thirty-five years ago the fishermen of Carteret County fished large mesh nets. I do not know that there were any nets fished there less than 1 1-2 inch. They didn't want to catch anything but salable fish. They sold then mostly trout, there being very little sale for gray trout, large spots and hog fish, large mullet that were salable. Small sized fish were not salable at all in those days. They did not catch them. They have been getting their nets smaller and smaller. Some were in this county, some were in Pamlico County. In fact there was no fishing in Pamlico County until the last ten or fifteen years. Then they all used good-sized mesh nets. They have it now down to about mosquito net size. I am getting at the opinion now with Mr. Huff in regard to different counties fishing different sized nets. Four or six years ago the Legislature passed a law making a certain size net for Craven County. Carteret County wanted to be exempted, as she usually does. They have always opposed dredging in their own county and fishing pound nets and yet they want to go in every other county and dredge and fish pound nets. Years ago I had a very valuable property at Cape Lookout in the open ocean. I was interested in setting pound nets in the bay, but the Carteret County men got up in arms and sent Mr. Duncan to the Legislature. He worked up the prejudices of the fishermen to send him to regulate fishing. They passed a law prohibiting pound nets from being fished in Carteret County, even in the open ocean, but they go to other parts of the State and fish pound nets and

dredge oysters. There were probably more men from that county dredging oysters and fishing pound nets in other counties than all others combined. Four years ago, when this law was passed regulating the size of the mesh, of course the representative from Carteret County wanted his county exempted, as usual. The fishermen here observe the law. I think all the fishermen in Pamlico observe the law. I have bought a good many nets for the fishermen and those fishermen in Pamlico County at great loss, had to destroy or sell their nets at a small price and purchase large mesh nets in order to conform to the law. I think in nearly every instance the fishermen conformed to the law in spite of the inconvenience. Result: Carteret County was exempted; their fishermen come through the waters of Adams Creek and fish pound nets and any mesh net in other waters. Carteret County borders largely upon the waters of Pamlico and Neuse River. They have quite a large stretch of water in their county on these sounds. So their fishermen came through and were not satisfied to go in Adams Creek, but fished in * * *. They caught thousands and thousands of small mullet after this law was passed. I have sent some to the Legislature to show what these people were doing. They sold them to some of the dealers here at fifty to seventy-five cents a box. These mullet grow very rapidly. One of these small mullet caught in the winter, if allowed to grow until next fall, would be a marketable mullet. They grow so fast that I have seen mullet in the spring of the year that would not be over 1 1-8 inches or 1 3-4 inches long that would have doubled in size and value by the fall. Those caught and sold in the spring at fifty or seventy-five cents per box, by the next fall would have been worth five times as much. They catch anything they can sell. If they had not been allowed to sell these or dealers not allowed to buy them, they would not have caught them. In the winter time they school up in these rivers and creeks and they throw these nets around them and catch them in great quantities. If the fishermen from Carteret County can come through that they would catch \$20 or \$25 worth of fish, and if they had been allowed to stay in the water until the next winter they would have been worth \$1,000. That is about the condition. The whole thing is a selfish business, and always will be. Mr. Wood is opposed to pound nets; so am I, unless they can be largely restricted. I don't believe the pound nets do the damage that many fishermen think, if properly set. I don't think they ought to be allowed to be set in this river above Wilkerson's Point. I don't think they ought to be allowed to be set within twenty-five miles of the inlet. If used with large size mesh I don't think they do a great deal of harm. If the pound netters are allowed to set their nets way out in the river and near the inlets, they will destroy a great many fish. They do more damage, in my opinion, in the fall of the year than in the

spring. Shad and herring are spawning up in the narrow parts of the rivers then. As to what part of the river the fish are in at any given time depends a good deal on season. If you have freshets at a late season the fish are kept down the river and many spawn down the river at the mouth of the creeks.

Q. If pound nets ought not to be set above Wilkerson's Point ought pound nets to be set in other rivers of the State?

A. I think they ought to be restricted to the wide part of the rivers. As I was about to say, Governor, I believe the pound nets do more damage in the fall than in the spring. These fish that are spawned by the shad and herring stay in the river until fall and then they get up a fairly good size. When going out to sea they are apt to be caught up by those nets that are set in the narrow parts of the sound and the pounds catch them and destroy them in great quantities. That is where I think the pounds do a great damage. I believe if set in the wide part of the river and in the open sounds and under the proper restrictions as to size of mesh, they would not do much damage. As to the haul seines I do not exactly agree with Mr. Huff. They all do damage. As he says they use 1 3-8 inch mesh the long stretch of the net. That is just the same as the lead of the pound. The four inch mesh will stop the fish. They lead along the four inch fish until they get him into the pound. Then there are the drag nets which catch a large amount of small fish. To prove that the fishermen of Carteret County don't use anything but drag nets, but they destroy more fish than anybody. This summer I have had fish consigned to me by Mr. Wallace so small as to be almost unmarketable. He has done more to encourage the destruction of fish than any one I know. He has consigned to me fish this season that I could not sell on the New Bern market at \$1 a barrel. I was in Philadelphia two or three years ago and I saw fish there from Morehead, consigned at fifty cents per barrel, and the freight was \$1.25. They have shipped thousands and thousands of boxes of fish from Carteret County that have had the same fate. They have done more to destroy the fishing industry and encourage the smaller catch than any one else. I think the whole trouble in North Carolina and Virginia is getting to be the same. Last year the *Virginian-Pilot* had several editorials about it, saying the Virginia waters were being literally cleaned up by the small mesh nets. My idea is that they all do it. Whoever uses the small mesh nets helps to destroy the fish. Ever since I have been in the business it has been hard to get any legislation passed that would be beneficial to the industry on account of politics. I believe it should be taken out of the hands of the Legislature. Carteret County and Dare County, and it has gotten so in Pamlico County and Hyde, that you can not send a man to the Legislature unless he votes with the fisher-

men. Representatives from these counties who go to the Legislature are usually put on the fish and oyster committees. If it is right for the Legislature to regulate the oyster industry it is certainly right for them to regulate the fishing industry. When these men are put on the committees they go immediately to work to see that their counties are not hurt. The consequence is there is very little practical legislation enacted that really benefits the fish interests. There is not one in a thousand of the laws on the statute books that is observed today.

Q. How many men have been indicted in Craven County in the past five years for violation of the fish laws?

A. I don't know of one. Every fisherman in Craven County today is breaking the law; I am breaking it myself. You can not blame these men. They went to work and tried to comply with this law by making their nets the size the law directed. They go down the river and come in contact with these nets of Carteret County with their small mesh which catch up the small fish and glut the markets.

Q. How can the Carteret County men come up here and fish in these waters with smaller nets than Craven County men and not fish in violation of the law?

A. They come through Clubfoot Creek and fish.

Q. Why are they not indicted?

A. They simply violate the law because no one is specially charged with the duty of enforcing it.

Q. And that is because nobody is charged with the duty of enforcing the law? Is it because the only way to indict these men is by one fisherman informing on another?

A. They don't want to do it. Now, gentlemen, in my opinion the only thing to be done is to pass a law and make all counties conform to it. It is not right to make Pamlico and Craven use certain size nets and let Carteret County use other nets to glut the markets, or even to come into our county. It is not right to say that pound nets can be fished in Pamlico and Hyde and let Carteret men come and fish them and not fish them in Carteret County.

Q. What do you think of permitting pound nets to be fished in Carteret County on the waters of the Neuse River?

A. I think they ought to be fished in Carteret County in certain waters.

Q. What waters in Carteret do you think they should be used in?

A. On the waters of Neuse River and in the ocean. They fish them in all the northern States. I don't think of another county in the United States where pound nets are not allowed to be fished in the ocean as in Carteret County.

Q. Is it not a fact in these States that you mention that the same

complaint of the seine as is made against the nets that are fished in the waters of this State?

A. Probably so. I think you will always find complaints made by certain fishermen against other fishermen regarding the fishing of certain size nets.

Q. What would you think of the proposition to permit the fishing of pound nets on the lower part of Neuse River and Pamlico Sound?

A. I don't see why they should not be allowed to fish on one side as much as the other. If it is right for them to go across Pamlico and fish in Neuse River, it is right for them to be fished on Carteret side.

Q. What is the extent of the shad fisheries at the present time? Can you give us any idea of the quantity of shad caught?

A. Yes; I can. For instance, twenty years ago I had three large shad and herring seines on this river. I think at that time there were about a dozen of those seines being fished below New Bern. Today there is but one fished two miles below the city and it used to be the best shad beach on this river. I don't think this last year we caught over fifty shad a day, making four or five hauls with a seine 300 or 500 yards long.

Q. That was unusual at that time?

A. It was not unusual at that time to take 200 shad at a haul.

Q. Are there many shad caught in other nets than seines?

A. Yes; a good many are caught in set nets. Two or three pretty good catches were made last spring with set nets, but on the whole the season was very poor. I suppose one-fourth as many were caught as five or six years ago.

Q. Have they ever caught a very great number in pound nets?

A. I have caught in pound nets, but no great quantity. I have never known any true pound nets to catch over 100 or 200 shad to a crew.

Q. To what do you attribute the decrease of the number of shad in this river?

A. I think it is very largely due to the pound nets being set in the mouth of the inlets. I think that there has been more destruction of fish in the fall of the year than in the spring. I think they catch the small fish as they go out.

Q. Through what inlet do you think your fish enter the sound?

A. I think most of our fish come in at Ocracoke.

Q. Do you know of your personal knowledge that the nets catch a considerable number of young shad and down-run shad?

A. I could not say of my own personal knowledge. It would be a very difficult matter to select out the young shad, but they do catch an enormous quantity of small fish, and these are destroyed.

Q. How large are these fish that you suppose to be young shad?

A. I suppose a young shad in the fall of the year, if he was spawned early, would be about the size of a small herring.

Q. How many inches in length?

A. Two or three inches; about the size of a small herring.

Q. Do you think that the fishermen at that time could distinguish between the young shad and others?

A. I think they could if they would take the trouble. They don't take the trouble, but dump everything out.

Dr. Moore:—It is a very difficult matter for anybody, even after a careful examination, to distinguish between a shad two or three inches long and a young herring.

Mr. Huff:—You can tell them by the under lip.

Mr. Ives:—We sometimes catch small shad in the spring of the year. Some years you don't see them. I think they get mixed up with the herring and come off with them.

Q. You can not distinguish them without careful examination?

A. Not unless you are pretty expert.

Q. What is your opinion as to the usefulness of planting shad in the Neuse River?

A. I think it is very useful.

Q. Do you think that would be efficacious in continuing the supply of fish?

A. I think it would be, but it is largely a waste of the government's money and everybody else connected if they are allowed to be caught by pound nets at the mouth of the inlets in the fall of the year. I think if the fish could be protected after they are up in the river, as they used to be, it would be a good thing.

Q. I understand the prime necessity is to keep open the inlets?

A. I think so.

Q. What do they do with the run-down shad that they catch?

A. If they catch them in quantities large enough they put them on the land. Two or three years ago the pound net fishermen at the mouth of the river and at the inlet caught enormous quantities of small butterfish or starfish. They would send them up on the boats on certain days and sell them. They call them overcoat buttons. They would sell them at twenty-five cents to fifty cents a box. I understand there were thousands of boxes dumped on the land. Since the Legislature passed its law four years ago making pound netters use larger mesh nets I have not heard of a similar occurrence.

Q. Have you been at the inlets yourself and seen these nets set?

A. I have passed by there.

Q. Do you know as a fact that they set within less than two and one-half miles of the inlet?

A. No, I doubt if they are set within two and one-half miles. That is a very short distance. Two and one-half miles, for instance, would be just the distance of the Beaufort Inlet.

Q. We want to get your ideas as to what distance they ought to be limited to.

A. Not less than ten or fifteen miles. You see these channels oftentimes marsh up with sand bars that work down and come to a head. Oftentimes they run out from the shore, particularly from near the inlets. It is this way at Beaufort and Ocracoke inlets. These often make the channels very narrow, so that the pounds set near the inlets are in a regular funnel. They ought to be set back ten miles at least from the inlets.

Q. What distance would you suggest—a distance of ten miles north-east and southwest as well as straight out in the sound?

A. Yes. Draw a ten-mile radius and exclude the nets from that entire area.

Q. Would you prohibit all fishing in that sound or only the pound nets?

A. No; I think a radius would be proper.

Q. How about the gill nets?

A. Only the pound nets, because they set all the time. The other fishermen, those who fish drop nets and those who fish drag nets, probably during the whole fishing season would not be over one-half or two-thirds of the time taking fish anyway. The stormy weather and heavy winds interfere with their fishing, but the pound nets fish all the time.

Q. Do you think the gill nets ought to be prohibited from this restricted area?

A. There is a law on the statute books saying that gill nets should be taken up on Fridays and put in Mondays, but it has not been observed. I don't think any gill nets ought to be fished anywhere near the inlets, because they obstruct the passage of fish.

Q. Do you think there ought to be a closed season for all nets?

A. That is the thing that I wanted to speak of. I think there should be a closed season for shad, commencing earlier up the Cape Fear and following on up the coast as the season advances. I think no shad should be allowed to be caught after a certain day, say the 15th of April, in the Cape Fear; 20th of April in this river, and then, perhaps, a little later as they go north. Another thing, the only way you can regulate the size of these fish is to not allow a fish to be in the possession of anybody below a certain size. If you regulate the size of the mesh a great many small fish can be caught in a large mesh net. If you regulate the size of the fish you can certainly prevent these small fish from being caught.

Q. Will you say whether you agree with this law that was passed in the last Legislature? (Chapter 906, Acts of 1909, limiting the size of the fish.)

A. I think something of this sort ought to be done. We should not use any bluefish under eight inches long. That is the way they have regulated it in the northern markets.

Q. From your observation and experience, what do you think would be the effect of increasing the size of the net? Would there be any increase in the number of fish gilled in the small net and in the large mesh.

A. No, there would be a decrease, of course.

Q. Can you explain that?

A. The fish would pass out through the meshes.

Q. Would you think that regulating the size of the mesh in that way in regard to danger of gilling would be preferable to regulating the size of the fish?

A. I think both.

Q. If you were to increase the size of the fish there would be a large number that would gill in the waters, especially if the nets were not fished every day. Would they be fit to be marketed?

A. I don't think there would be a large number. I think most of them would go out.

Q. Have you had any practical experience in that line that you could relate to the Committee?

A. I was interested for several years in some large pound nets at Cape Lookout. I have also talked with the fishermen in Pamlico that have used the large mesh nets and they like it. They don't get anything for the small fish and their nets cost them less money, and while the fish go into the pound and are swimming around, the small ones will go out again. If the pounds are fished with the small mesh large quantities of small fish go in and can not get out, and get jammed all up and die.

Q. You have never actually fished a pound net?

A. I have been there when they were being fished.

Mr. Huff:—It doesn't make any difference if the pound net is four inches large, when the water rises the fish can not get out. That is only at night. That is the time they kill up the small fish. You can not catch the fish in the daytime because they see the nets and won't mesh. Consequently, it does no good to regulate the size of the mesh in a pound net.

Q. What proportion of the fish that you buy come from the nets fished above New Bern?

A. A very small proportion now. There was a time when we got a large proportion during the shad and herring season.

Q. What proportion do you get now?

A. During the spring season I get about one-twenty-fifth of the fish that I have above New Bern. About twelve or fifteen years ago I leased two beaches up the river, above the bridge, for a term of years. They belonged to a colored man and I paid him \$200 apiece. One year we fished four nets, two on each beach, and kept them going. Our profits from these two beaches, just our shares, took one-sixth of the beach rent, and I think we had two shares from each net, and as I recollect, our profits from these two beaches was nearly \$1,000.

Q. You are a large fish dealer in New Bern.

A. Mr. Wood had some nets just above our place and I expect he did as well. For the last five years those beaches could not be rented for a cent. I have taken them on shares and tried to get some fishermen to fish them, and I think those men probably got fifteen dollars rent.

Q. Please tell us something about oysters. What has been the decrease in oysters in these waters within the past ten years?

A. I doubt if there has been much decrease in ten years, the decrease was before that time.

Q. Do you think there are as many oysters shipped from New Bern as there were ten years ago?

A. Not one-fourth. Fifteen years ago, one year we worked seventy to seventy-five shuckers. For the last two or three years we have only handled from a dozen to twenty-five, and got 2,000 shell oysters in a day. For the last three years I have had from three to five shuckers and have probably as many oysters all winter as I formerly did in one week.

Q. To what do you ascribe that great decrease?

A. About the same way about the oysters as the fish. The oysters were scraped up by the dredgers and tongers and the dredgers would cuss the tongers and the tongers would cuss the dredgers. The State employed a man to inspect the oysters and see that they were properly culled and the laws enforced, but this does not seem to have been carried out very well.

Q. What remedy would you suggest to that?

A. Put it in the hands of a commission. Take it entirely out of the hands of the Legislature.

Q. Do you think we ought to have a board with powers similar to the Board of Agriculture?

A. That, or leave it with the United States Fish Commission. As long as you are going to have this thing in politics you will never have these laws enforced.

Q. Do you think that setting these nets close to the bridges has anything to do with the decrease of the catch of fish?

A. I think it has a great deal to do with it.

Q. How close do you think they ought to be allowed to go?

A. I think the law passed in the Legislature is about right. At the confluence of the rivers about 1 1-2 miles below the bridge.

Q. Do you think that would be satisfactory?

A. Yes.

Q. What is your observation of where the spawning ground of the shad is in these waters?

A. In normal seasons, when the water is clear, they go up as far as they can, but in years when we have the heavy freshets they spawn lower down.

Q. Do you think that the cutting of that canal at Adams Creek would have any effect on the amount of fish that would come into these waters?

A. I think so. I believe there will be a good many more fish caught in these waters.

Q. Don't you think that the width of that canal would have a beneficial effect on the fish that come into these waters?

A. I think we would have a lot more salt water fish.

MR. ANDERSON.

Q. Are you a practical fisherman?

A. I have been fishing since 1855.

Q. What recommendations have you to make to the Committee to increase the fish in these waters?

A. I don't think of but one thing that will increase the fish, and that is to remove the pound nets. I have been fishing since '55, and up until the time the pound nets were started in we could not destroy the fish caught. Since then the catch has fallen off 10 per cent. I was talking to one of the pound net fishermen and he told me if they were allowed to continue, in five years he would have to quit.

Q. Do you recommend the removal of pound nets from all the waters?

A. I would recommend the removal out of the whole waters of North Carolina, if possible.

Q. But they certainly ought not to be in the rivers and sounds?

A. They ought not to be in the rivers and sounds. I would suggest they be taken out of all these waters.

Q. How about the stake gill nets—anchor gill nets?

A. They are an obstruction to the fish, too. Three-fifths of the fish caught in the gill nets are a total loss. They catch a great many little fish in Pamlico Sound. There is no chance to let them live after being caught in the pound net. They are dumped in a boat and before the others are taken the little ones are all dead.

Q. Do you think you could get most of the small salt water fish out?

A. No; could not get them out. I have experienced that part of it.

Q. Do you think pound nets are worse than the gill nets?

A. Yes; four times as bad.

Q. What length net do you use?

A. Two hundred to 250 yards. My seine is about 250 yards long.

Q. Would you recommend that any part of the river should be kept absolutely free from obstruction by nets?

A. I think two-thirds of the river ought to be kept free from stationary nets. In running seines they have always been allowed two-thirds of the channel.

Q. Don't you think there ought to be some portion of the river in which no one ought to be allowed to fish?

A. Not for running nets. They are out of the water about three times as much as they are in the water.

Q. Do you think there ought to be any season in the year in which there ought to be no fishing whatever?

A. I don't think so.

Q. Don't you think if you had that closed season that within a year or two you could make in one month more than you had made in ten months?

A. I don't think so.

MR. BREWER.

I think it has been thoroughly ventilated here that the pound net is destructive to the fish. Any stationary or stake net is destructive to the fish. Very few people are able to have pound nets. The fish dealer as a rule furnishes individuals with these and they work for very little and they kill great quantities of fish. I investigated this matter in January, 1897. I met a gentleman from Ocracoke and he told me that they put out their pound nets in the fall and did not take them up until the spring, and he had seen very great quantities of young shad thrown out upon the shore. These nets usually stand three months. I don't see that there could be any argument produced to continue these pound nets. As for shad nets, I have been a shad net fisherman myself. I used to catch from 300 to 400 shad a day. I worked some set nets and I think I killed about four or five shad to every one I caught. It was food for catfish and eels. It is all right for a man to set nets if he could get the fish and put them on the market, but as it is they are destroyed and I think the young ones ought to be protected. Take out all the stake or stationary nets and let them use the gill nets, drag nets and seines and everybody would have a showing at the fish.

Mr. Huff:—Take it from Johnson's Point down the river and the eels don't bother the shad. Whenever a fellow gets a lot of eels in his net, it shows he is lazy and don't fish his net.

Mr. Brewer:—I believe if you could get all the fishermen together and they would say what they think, none would be opposed to taking out the stake or stationary nets.

Mr. Huff:—We never had any scarcity of fish until we had pound nets. Shad accumulated with the regular shad nets.

JACKSONVILLE MEETING.

JULY 22, 1909.

Meeting called to order by Chairman and Judge Graham explains the object of the meeting.

MR. KOONCE.

I am profoundly grateful to Judge Graham for his kindly remarks of what I have done in the Legislature, and I desire to express my appreciation of his regard before my people. You people expected this Committee to be a huge monster to do some damage, but they are your friends. They are sent out here to investigate conditions. I have always fought the idea that we, having only an inland lake, should not come under a general law; but we should settle the question so as to promote the industry. I am glad the Judge has gone into this and let all of us be free and easy about the matter. I can not introduce to you men who have made it their life work. The people in this county do not enter into it as a life business. I will give you men who can tell you how much they make out of it. The mullet we get from the ocean and the trout from New River are all the merchantable fish we get here. We have some fish though at all seasons of the year, but it is only enough to supply the local demand and if a man gets more than he can eat himself or give to his neighbors he makes compost out of them.

MR. E. S. SMITH.

Q. How long have you been engaged in the fishing business?

A. I have never fished any myself.

Q. Are you a dealer?

A. No, I don't buy fish. I have a piece of a beach and get some little shares for the use of it.

Q. What fish do you catch up here?

A. Catch mullet on that beach; sometimes trout, spots and others of that kind.

Q. Do shad ever come up this high?

A. I never see any shad. Have seen one or two in New River at the time.

Q. Where is your beach?

A. My beach is what is known as Brown's Inlet fishery.

Q. How far from here?

A. It is about twenty-five miles. It is thirty-five by water.

Q. Has the supply of fish decreased in the last ten years in the waters here?

A. I think so.

Q. To what do you attribute it?

A. I have no idea.

Q. What kind of nets do you fish in this county?

A. We fish gill nets, cotton and linen nets.

Q. Do they fish any pound nets?

A. I don't think they fish pound nets.

Q. What size mesh?

A. They fish from 1 1-4 to 2 inch bar, 4 inch mesh.

Q. Have you any recommendations that in your opinion would improve the fishing industry?

A. Certainly not. I don't know anything about it.

Q. What size mesh do you think is the proper size to be fished in these waters?

A. I don't know. We have all kinds of fish and the fishermen use all sizes of nets.

Mr. Koonce:—They are allowed to fish for menhaden with an inch bar, 2 inch mesh.

Q. Have you a law here regulating the size?

A. Yes, for shad and menhaden.

Q. Where do they catch these menhaden or fatbacks?

A. Catch them in the ocean.

Q. Where are they shipped to?

A. Some are shipped to a factory on the Cape Fear and some to Beaufort.

Q. Do you have any in this county?

A. No.

Q. Are any of the Onslow County men fishing for these or do any men from other counties come down here to fish?

A. They come off shore. The Onslow County men fish very little for menhaden.

Q. I understand you to say that others are fishing for the fatback?

A. Men from Carteret, New Hanover come up, but they fish on the outside.

Q. Do you catch any of the white shad?

A. I don't think so; very few.

Q. Do you catch any herring in these waters?

A. Some.

Q. Are there more people in the county now engaged in fishing than there were ten years ago?

A. I don't know. There are a good many people who attempt to turn a few dollars in fishing when they get their little crops done and a good many people catch a good many fish that are not regular fishermen.

Q. To what extent do you think the supply of fish has decreased in these waters?

A. I don't know.

Q. Have you any interest in the oyster business?

A. I have some oyster beds.

Q. Has the supply of oysters increased or decreased?

A. They have decreased very much.

Q. To what do you ascribe that decrease?

A. Several years ago a good many oysters were planted and I take it they were not planted properly and the mussels took charge of the beds and killed them out. A good many people lost money and others lost their labor, and since that time there has not been many oysters planted.

Q. Are there any natural beds in these waters?

A. Some down near the inlet. There used to be a great many natural beds, but they have been pretty nearly broken up.

Q. How were they destroyed?

A. They were destroyed by clam tongs digging them up and in various other ways.

Q. There were no natural causes; they were destroyed by the acts of men?

A. I think so.

Q. Are there any natural beds now that produce oysters that are put on the market?

A. Yes; some few.

Q. Where are they located?

A. Down near the mouth of the river, say four or five miles.

Q. Do they need any protection?

A. Nothing there to protect now.

Q. You mean there are no oysters on the beds now?

A. Now they are mighty small.

Q. Your supply of oysters comes almost entirely from private beds?

A. Pretty nearly.

Q. About how many men in the county have planted oysters—owning beds from which they derive their oysters?

A. I don't know.

Q. Are there any dredges used for hoisting in this county?

A. No.

Q. Have there ever been any?

A. No. I have seen one or two little dredges two or three feet long being used.

Q. Are there any oysters shipped out of this county for seed oysters to plant in other counties?

A. I think not.

Q. Do you know of any being shipped to Maryland and Virginia for this purpose?

A. I do not know.

Q. What do you think would be best to increase the supply of oysters in this county?

A. We have been talking about that for a long time down in my section and one man will arrive at one conclusion and another at another, and no one seems to know.

Q. What is your opinion about it?

A. I don't know that I have one worth giving. I don't know enough about oysters.

Q. Is there any recommendation that you could make to us in regard to this matter?

A. No, I have no suggestion to offer.

Q. Are there planted beds here? Are the oysters planted here on what was formerly oyster bottom, but which has been destroyed, or have they been planted where oysters never were before?

A. There are very few natural oyster beds taken up. Some few men might have taken up small oyster rock. In getting ten or fifteen acres he might have gotten a small part of an oyster bottom. The Shellfish Commission tried to look after that and did not allow a fellow to enter an oyster rock.

Q. What is your opinion in regard to entering natural rocks on which the oysters have been destroyed? Do you think it should be permitted?

A. I don't.

Q. Do you think an oyster bed should always be regarded as such?

A. If you had some proper legislation I think a good many of them might rebuild.

Q. What proper legislation would you suggest?

A. I don't know. Some say if the oysters were culled up to a certain size and the small ones left, it would build up the rock. Some say if you would keep off at certain seasons of the year they would build up.

Q. Have you any idea of the value of the fish that are shipped out of this county?

A. Not the slightest.

MR. WALLACE LEWIS.

Q. What is your business?

A. Fishing, farming a little, but mostly fishing.

Q. Do you think the supply of fish has increased or decreased in the past ten years?

A. I think that the supply of fish has decreased.

Q. What do you think is the cause of that decrease?

A. I could not answer that without so many people fishing and navigation runs them off.

Q. Is the mouth of your inlet closed up now?

A. No, we have no inlet, only what was cut through by a dredge boat. We have more salt water than used to come here. Winter fish put up mostly in fresh water. The mullets are very much less.

Q. How is it with your white shad?

A. Mighty few comes in this river.

Q. How is it with the trout?

A. Some winters a mighty few trout and some winters hardly any.

Q. What is the principal fish you catch in these waters?

A. Mostly mullets.

Q. What sort of nets do you use in this county?

A. They use gill nets mostly, what we call drop nets.

Q. What is the length of these nets?

A. From a hundred to some 150 yards, but most of them will not average over 125.

Q. Do they have any over 200 yards in length?

A. Not often do you ever hear of one 200 yards in this river.

Q. How is it down at the mouth of the river?

A. Down at the mouth of the river you can not have them as long on account of the tide. No haul seines or anything of that kind is used in the river.

Q. Are there any people in your county interested in the menhaden or fatback fishing?

A. No. They can not get out of the inlet to catch the menhaden.

Q. Are there any boats from other counties engaged in that business?

A. No; never see anybody but the shad company that fishes from the Cape Fear River.

Q. How many boats do they use in that business?

A. Sometimes two steamers and sometimes three.

Q. What season of the year do they fish?

A. Mostly in the fall season. Once in a while you see them passing along in the spring.

Q. In what part of the county do they fish?

A. Right at the mouth of the river.

Q. Where do the people in your section ship their fish to?

A. The fishermen ship mighty few of the fish they catch. They sell them to hucksters about.

Q. Do boats go out from Wilmington, New Bern, and Morehead City?

A. None from Wilmington; some from Morehead City.

Q. You have been in the business for quite a while. What do you think would be a fair estimate of the value of the fish shipped out of this county in the past year?

A. I could not answer that question.

Q. They are all engaged in farming too, are they not?

A. As near as I could come to the truth I would say three-fifths of the fishermen do not make enough to pay for their tackle.

Q. How many men are there in the county that follow fishing exclusively for a living?

A. Not all of them.

Q. What do you think is the cause of the falling off of the fish?

A. I don't know. Used to when there were not many fishermen it was like hunting, but now that so many fish are not caught and so many to catch. I have seen the time when I could get a lot of fish for which there was no market.

Q. Do they pay any license for fishing in this county?

A. No, I don't get out any particular license? Our lands are valued pretty high on account of water privileges.

Q. There is a tax upon the land and not upon the fishing?

A. I have not known any one taxed but an oysterman.

Q. What size mesh do you use in your seines?

A. They use from 1 1-4 inch to 2 inch bar. They use the small bar in catching mullets and the large bar in the spring for roe mullets. We do catch herring here in the river.

Q. That is the only way that the fish can come into New River?

A. Yes, and the inlet is so small that anything will turn them out. So many are fishing on the outside they keep them out.

Q. Do you think that if the inlet was dredged out and kept open that the supply of fish would increase?

A. The inlet is open enough but fishermen from other places come in and fish on their side and keep the fish out.

Q. Do they set any nets on the outside of that inlet?

A. I have heard of them setting there, but I have never seen any of them.

Q. Do they use pound nets or dutch nets out there?

A. They use what they call deep sea nets. Sometimes on smooth

nights I have heard of them setting their nets along the beach to catch trout.

Q. How far out do they set these nets?

A. Down the bank the length of the net.

Q. How close do they fish to the inlet?

A. They fish all in the mouth, anywhere the water will float the boats.

Q. Is there any law against setting nets in the inlet or mouth of the river?

A. They tell me there is a law prohibiting the hauling of seines within a quarter of a mile of the inlet.

Q. Do they pay any attention to that law?

A. No; they don't regard it.

Q. Have you ever heard of any one being indicted for fishing?

A. I had a brother indicted for getting some mullets with a drop net.

Q. How long ago has that been?

A. A few years back.

Q. Was he convicted?

A. No.

Q. Are you engaged in the oyster business?

A. I have a couple of oyster gardens.

Q. How large are they?

A. One twelve acre and the other fifteen. That is what I pay tax on, but they are not worth the taxes.

Q. What taxes do you have to pay on these?

A. I don't remember what the tax is now.

Q. How long since you planted these oyster gardens?

A. I planted one of them about four years ago.

Q. How has the supply of oysters been in that garden?

A. It has been sorry for me. It was a good ground to raise them on but they have been stolen out so. I put 14,000 bushels and didn't get but about a bushel.

Q. Who are they—visitors from another county or your friends?

A. They keep it cleaned out. I might say some of my friends and neighbors. I have caught two or three parties in there, but some didn't go in intentionally.

Q. How many people are there in the county that have these oyster gardens?

A. Not a great many. I don't think there are many people interested in oyster gardens, only from Sneed's Ferry down. There are not but a couple of men that I know of that get anything out of them.

Q. Why is it they are run down? Is it because they can not raise oysters on the bottom or because somebody carries them off?

A. The salt water gets in and they grow into cooners.

Q. Do you plant oysters or shells?

A. I planted seed oysters. The garden is running down owing to the salt water and sand. They don't do well in sandy bottoms.

Q. Since that salt water, has it improved conditions farther up the stream?

A. I don't think they raise any oysters higher up than Sneed's Ferry.

Q. Has anybody tried it? Is it too fresh up above and too salt below?

A. The water is too fresh. The inlet is so small and the river is large. The water gets fresh and the oysters get fat and then there will be an inrush of salt water which kills them.

Q. How wide is the inlet?

A. Not very wide. The channel is nothing more than a street going out, possibly a hundred yards after the canal gets through. The canal is perhaps fifty or sixty yards wide.

Q. How deep is the water on that bar?

A. I don't suppose now they can get over four and a half or five feet on the average. Maybe one week we can get five or six feet and a week after that only four and a half or five.

Q. How high does the tide rise with you?

A. The ebb and flow of the tide where I live is not more than four to six inches. The lake or river is so large and the inlet is so small that unless it is springtide the rise is very little.

Q. What do you get for oysters here? What do they sell for?

A. About seventy-five cents or \$1 for No. 1 or shell oysters.

Q. What did they used to sell for?

A. I have heard that is what they brought. Very few have any or sell any.

Q. What do you think would be best to do to increase the oyster industry in the county?

A. I don't know of but one thing to do and that would be an injury to this whole class of people, and that would be to stop catching them.

Q. How long?

A. It would take a long time.

Q. Have you a Shell Fish Commissioner or deputy in this county?

A. We have what we call a Shell Fish Commissioner appointed by the State, who makes grants to people where there are no natural oyster beds.

Q. Who is it?

A. Mr. Pollard and Mr. Jarman.

MR. HORACE GRANT.

Q. How long have you been interested in fishing?

A. All my life; that is, outside fishing. Never use inside net or seine. I fish three months in the fall—from the 15th or 20th of August to the 15th of November.

Q. What kind of a net?

A. We call it a seine—1 1-8 inch net. We merely haul the fish to the shore—anything from 1 1-4 inch fish to as big as we can get.

Q. How far out from the shore do you fish?

A. At times we go 100 yards.

Q. You just fish out from the shore and back?

A. Just fish from the shore and back; stationary, fishing the fish from the beach.

Q. Do the steamers that come up here from the menhaden factories bother you with your fishing?

A. I think not. If they have, we don't realize it.

Q. What kind of fish do you catch here?

A. Mulletts. If we catch any bottom fish we utilize them as best we can.

Q. Are there bluefish or mackerel in these waters?

A. Seldom ever catch a mackerel. Catch some bluefish. Try not to catch them.

Q. Is there any market for bluefish?

A. There is some market here, but we are so far from the railroad that it does not commence until the weather gets cool. We do not catch bluefish because they eat our seines up.

Q. Do you ever catch any white shad?

A. I sometimes hear of a white shad being caught in the river, but never knew of one being caught.

Q. Where are the ships from that do the menhaden or fatback fishing?

A. We think they are from the Cape Fear.

Q. How far off the shore do they fish there?

A. No closer than 200 yards. From that as far off as they find fish.

Q. Do they come as close as 200 yards—these fishermen from Cape Fear?

A. Yes; they come as close as forty yards.

Q. Do you know anything of the dimensions of the net?

A. I don't know.

Q. How deep is the water?

A. Twenty or twenty-five feet.

Q. How close do they come to the inlet?

A. I think I have seen them up pretty close to the inlets—within 400 yards anyhow.

Q. Do you think that they fish frequently enough to do any damage to the fish in the water?

A. I don't think they do. I don't think catching the menhaden fish damages us at all.

Q. Have you even seen any evidence that they catch anything but the menhaden?

A. I could not tell you what they do catch. Whatever they catch they catch it and carry it away. They never stop here.

Q. Have you ever heard of any complaint?

A. I have heard a great deal of complaint towards Beaufort. I hear there is a fine, but they catch the fish and pay the fine. One man of the crowd indicts the crew and they pay the fine out of the catch and make a profitable investment.

Q. In what part of the water do the Carteret County men fish?

A. I never see the Carteret County men up here.

Q. Is there any fishing about Swansboro?

A. There are some fishermen there who fish the drop nets and some outside nets all along the beach from Cape Lookout to the river.

Q. What sort of fish do they principally catch there?

A. Mulletts in the outside seine; the inside catch bluefish or anything else that is salable.

Q. Where do they market their fish?

A. Power boat or gasoline boat. A good many ship from here.

Q. Can you give any estimate of the value of fish shipped from Onslow County this year?

A. I have not had any experience with the fresh fish business. My experience has been with salt fish. Some years the business is better than others.

Q. You are also interested in oysters?

A. I have some oyster bottom.

Q. How much oyster bottom have you?

A. Twenty-six acres, all told.

Q. Does that produce regularly?

A. It would if properly cultivated, but there is a good deal of dissatisfaction about bedding oysters.

Q. Have you any special law covering the cultivation of the beds? Are you required to plant so many bushels per acre?

A. I don't think so. I have no account of it.

Q. Do those who practice oyster gardening take any pains to cultivate them?

A. There is no method whereby you can do it. You can only spread

them out on the bottom and if they do well it is good; if they do bad, they are gone. The oyster industry is not very encouraging here now.

Q. Has it decreased very much within the last five or six years?

A. Yes, they seem to have decreased.

Q. What do you think is the cause of that?

A. I could not tell unless it was the amount of salt water coming in New River.

Q. Has the oyster cultivation increased farther up the river?

A. There is nothing for it to increase on farther up the river; no rocks after you pass the ferry. An oyster won't catch on anything unless it has some solid in the substance. If it gets on the sand or mud, it is down and out.

Q. Suppose you spread shells on that bottom, what would be the effect?

A. You would get a good crop of oysters and usually a very good one of mussels.

Q. You don't get the mussels in the saltier waters, do you?

A. Yes, a good many.

Q. Enough to interfere with the oyster culture?

A. Sometimes it does considerable, and then again it will disappear and be gone for years. I recollect on one occasion my brother bedding some oysters and they stood for several years without doing anything, and finally the mussels grew plumb out of the water and then after a few years they disappeared, and there was finally a very good crop of oysters there.

Q. Have you any recommendations to make to the Committee whereby the fish and oyster industry of this county might be improved?

A. I don't know that I have.

Q. Would you like to be let alone?

A. I suppose it would be as well as you could do for us.

Q. Is there any general opinion as to any steps that might be taken to improve the fishing industry?

A. No, there are a good many people who advance the idea that if we would use a smaller mesh net it would be more profitable.

Q. In the fishing here, are there any small size fish destroyed in taking up the nets?

A. We don't destroy anything that is salable, but a good many little fish get caught.

Q. They get caught in the nets and in handling the large fish they are killed?

A. We don't kill any fish. What we take up are sold, but it is marketing a fish when he is half grown.

Q. Do you have any law limiting the size of fish that may be sold or bought?

A. Not that I am aware of.

Q. Do you think it would do any good to limit the size of fish that could be sold?

A. I don't know about that. Some people hereabouts are impressed with that idea that favor a regulation of the size of the mesh of the net.

Q. These nets outside in fishing for menhaden, don't they necessarily catch other fish?

A. I think not. I don't think any other fish are associated with the menhaden.

Q. In catching fish for fertilizer—any other kind of fish would be as valuable to them?

A. I guess so.

Q. Do they think the depletion of the oyster is due to the way they have been caught?

A. The oysters on the rocks I think are depleted by the letting in of the salt water, which causes clams to grow and clamming becomes more profitable than oystering.

Q. Does your oysterman take all away and put nothing back?

A. That's the idea.

Q. Don't you think it is due to that that the oyster beds are depleted?

A. I don't know. Of course it injures it some.

Q. When do they commence to catch the oyster?

A. I think they begin oystering in October and oyster until April or May.

Q. Do you think the time in which they are fished ought to be limited to give them an opportunity to propagate?

A. I should think the limit is sufficient from April to October.

Q. Are there not rockfish in this river?

A. Very few.

Q. They are not caught enough to make that industry of any value?

A. No.

Q. How are they caught?

A. They are occasionally caught in gill nets.

Q. Any sturgeon in these waters?

A. No.

Q. You have used the term "drop net." What do you mean?

A. A drop net is one that each man fishes himself off his boat. They move from place to place.

Q. Do you think that if there were any regulation in respect to keep-

ing open a certain part of the waters that it would permit more fish to come up the river?

A. A good many people believe that. A law was passed a few years ago regarding that, but it has never been obeyed.

Q. It has not been obeyed sufficiently to demonstrate whether it has been of any value?

A. It has not.

Q. What is your opinion?

A. I don't know. I am not acquainted with the river fishing. I simply fish on the outside.

Q. Are there any narrow points of the river that are fished entirely across so as to prevent the fish from going up?

A. I should think there was. It is very narrow down next to the inlet. For a mile or mile and a half it is not over 100 yards across.

Q. Don't you think it would be an advantage if a law was passed prohibiting them from fishing more than one-third on each side of the river?

A. I don't know. I don't think you could ever execute a law like that. If they had that I really think it would be better for the river fishing. It would take a regular battery to keep them out.

Q. If three or four men were convicted and punished, wouldn't it have some effect?

A. I think it would have some effect.

Q. Don't you think if they thought it was a good and reasonable law, the people would be behind it?

A. I don't know how to answer, but it looks like it would.

Q. Public sentiment would enforce almost any law?

A. Public sentiment has a good deal to do with the enforcement of the law.

Q. You said that you thought that the catch of fish would be increased by making the nets smaller. You mean making them larger?

A. Making the nets larger. I heard you ask them here what is the cause of the decrease of the catch of fish. The decrease is caused by the increase of fishermen. Ten nets now to one ten years ago.

Q. And with that large increase of fishermen the amount of fish is decreased?

A. It has decreased to the man, but not to the amount. When you get them all together you will find a bigger pile of fish while no one man catches a great deal of them. There are more men after them.

Q. There are a great many more people catching fish?

A. Yes.

Q. Are there better appliances for catching fish now?

A. I think they use better nets. I know they use deeper nets.

Q. Are there any pound nets in this county?

A. Not that I know of. There was a pound or two on the river here, but I have not heard anything of it lately.

EX-SHERIFF SAUNDERS.

Q. Has there been any increase or decrease in fish in this county for the past five or six years?

A. There has not been any decrease.

Q. What kind of fish are mostly fished in your section?

A. Mulletts.

Q. You don't think there has been any decrease?

A. I think the general output of the catch of fish is as large as ever. Every year the catch is not the same. Some years the catch is smaller than other years. In the fall, down with us, ours is entirely salt water fishing. During the fall season we have established fisheries. Those fisheries begin both inside and outside some time between the 10th and 20th of August, and they continue to fish for mullets until somewhere about the 1st of November, between the 1st and 20th of November. We have quantities of fishermen that fish with drop nets outside these stationary fisheries during the fall and winter. Then through the winter season we have quite a little haul seines. They catch up those rivers and creeks, Whiteoak River and Queen's Creek, and occasionally along the sound between those two places and beyond, or west of Queen's Creek they catch quite a number of small mullets; very small mullets with the haul seines through the winter and in the spring season they fish for the speckled trout that are so very valuable.

Q. Where are these fish caught in your waters marketed?

A. They are marketed at Morehead. The Morehead hucksters run boats up and begin as soon as the fisheries open and until the trout season closes in the spring about the 1st of May.

Q. Do you catch any white shad or herring in these waters?

A. Occasionally through the spring we catch some white shad and some herring. They catch a good many herring with the small seines fishing for trout.

Q. Formerly a great many fish were caught in the Cape Fear and in Pamlico and Albemarle sounds. Can you tell us why the white shad do not come in these waters?

A. Can not tell you. We catch through the spring occasionally some shad with our trout seines down in the salt water.

Mr. Koonce:—The river is too sluggish. I have heard Mr. Lewis say, who lives near the inlet, that the river is so sluggish that the tide does not rise over six or eight inches. The shad seeks waters that run swift.

Mr. Saunders:—It is swift where we live.

Q. Do you think that if one-third of the river was left open and nobody could fish in that one-third, that it would tend to increase the fish in that river?

A. I could not say anything about New River; I can speak for the two inlets around us. We have a law protecting Dare and Brown's inlets already. No one is permitted from the first day of September until the first day of April to fish within a mile of the eastern or western beach of Dare or Brown inlets or within a quarter of a mile on either side of these two inlets and the fishermen down there seem to be very well satisfied with that law; it keeps the inlets open and when the fish get within a quarter of a mile of the inlet they scatter and get up into the marshes and it gives the small fishermen with their small nets a better opportunity of catching fish.

Q. Can you give us any estimate of the value of the fish shipped from Onslow County in one year?

A. I could not approximate it. Quite a quantity of fish are shipped from Onslow.

Q. What can you tell us about oysters?

A. We only have coons fit for canning.

Q. Nobody is engaged in oystering there?

A. None at all caught around through last season.

Q. Do any of the boats come in there from further up to get coon oysters to plant in their waters?

A. No, I don't think any of them are ever taken out for planting purposes.

Q. Any oyster gardens in that part of the county?

A. A few in Queen's Creek and on one of the tributaries to Queen's Creek.

Q. How have the owners of these gardens succeeded with them?

A. The oysters are exceedingly fine in some of their gardens. The creek being small the gardens are very small. The oysters are of a very fine flavor and grow to a large size.

Q. Do they produce enough for shipment, or are they all consumed?

A. They don't ship them. The local trade around there about takes what they have.

Q. Do they have any trouble with mussels in these oyster beds?

A. If they are troubled with mussels in Queen's Creek I am not aware of it, or Whiteoak River either.

Q. Can you make any suggestion to us as to what laws could be passed to benefit the fish and oyster industries in this county?

A. I could not. I do not know of any law that would benefit our coons.

Q. As to the fish?

A. I don't think there is anything that could be done to promote the fishing industry around our waters. The people seem to be very well satisfied with the present conditions of fishing around here.

Q. Are there any pound nets used in your section of the county?

A. None whatever.

Q. What are the nets most generally used?

A. We have the drag seines, which are usually about 1 1-8 to 1 1-4 inch bar; then they have gill nets, twine or cotton gill, which run out for fish of any mesh. It depends upon the size of the fish they are after. A few are 1 1-4 inch mesh, but most are 1 3-8 inch mesh, according to the sizes of the mullets in the fall.

Q. Do you think it would be advisable to pass a law limiting the size of the fish that can be marketed?

A. I would not make any suggestion at all about the size of seine or nets that should be used or the size of fish that should be caught, but my idea is if there is any legislation on that, the shipper of fish should not be permitted to be caught with any fish less than a certain size in his possession. I don't know that it would promote the fishing industry, but I think if there is any legislation on that point it should be directed toward him.

Q. The mullet is a fish of very rapid growth?

A. I think so.

Q. Don't you think it would be a good thing to prevent them from catching the small fish when they would grow to double that length in a few months?

A. It seems to me it is a pretty hard matter to catch the fish up so as to make them scarce, the mullets especially. It rather strikes me that if any fish are to be protected it is the roe mullet.

Q. What is the time of spawning season for mullet?

A. I think it is along in November.

Q. Do you think it would be a good idea to make the time in which these mullets can be caught shorter than it is now?

A. I could not say. As Mr. Grant has just stated, while there are as many fish, apparently, as there ever was, no one man catches as many as they used to.

Q. Do you think that the individual fisherman does not make as much as he formerly did because there are so many more?

A. That's it. So many more that he is pushed out to a very great extent.

Q. Is there any sturgeon fishing on your shores?

A. No.

Q. At the time that you were taking oysters from the natural beds

in your vicinity, was there any improvement in the quality of the oysters after the thinning out of the beds?

A. I don't know. It has not been running long enough to tell. This was just last winter a year ago. The oysters since that time have grown very little. Whether he gets any larger or not I am unable to say.

Q. Can you tell us whether there are any white shad running into Whiteoak River and Hunter's Creek?

A. They catch some up there, but no great quantity.

Q. Have you any evidence that they spawn there?

A. Yes.

Q. Are there any fisheries up these rivers?

A. Not that I know of. There are no fisheries. They only catch with a little net. Some of them have a little net in which he catches a few fish. I have heard that when they get up where the streams are narrow they work with a little dip net.

CAPTAIN JOHN MOORE.

Q. Are you a practical fisherman?

A. Yes.

Q. How long have you been engaged in the business?

A. About twenty years.

Q. What part of the county are you from.

A. Twenty-three miles from here.

Q. Is it south of the inlet?

A. Just on the south side of the inlet.

Q. What kind of fishing do you do?

A. Mullet mostly; trout in the winter time.

Q. Do you fish outside?

A. Fish inside.

Q. Have you any recommendations to make to the Committee whereby the fishing industry could be improved?

A. I don't see where it can.

Q. You think that the mullets are plentiful enough?

A. No, I think they will be scarce enough after a while if they use the size nets they are now using.

Q. What size nets have they been using?

A. One and one-quarter and 1 1-8 inch.

Q. What size should they use?

A. I don't think they ought to be allowed to use smaller than 1 3-8 inch mesh.

Q. Do you think a law of that kind passed for this county would meet the approval of the fishermen of the county.

A. I think it would be beneficial. The small class of mullets downs the prices of the large class.

Q. What do you think of a law that would prohibit the fisherman or the huckster from having in his possession a mullet of less than ten inches?

A. I don't think that law would do, unless you prohibit their using the smaller sized mesh nets.

Q. Wouldn't it be to his interest to change his net if he could not sell it?

A. Yes, if they would not buy them.

Q. Suppose they enforce the law and prevent him from selling it?

A. That would be beneficial if there were more indictments done, but they leave that off. Last winter I was fishing up here with a 1 3-8 inch mesh and the man next to me used a 1 1-4 inch mesh, and he would get as much for his fish as I got for mine, and mine were larger. You could get as much in proportion for 1 1-8 inch mullet as for 1 3-8 inch.

Q. They are sold by the pound?

A. They are sold for so much apiece.

Q. The large sized mullets are not as high in proportion as the small ones.

A. No.

Q. Why is that?

A. I could not say. We get \$1.60 for 1 3-8 mullets and most of them are 1 6-8, and they are all taken in for \$1.60. Where the 1 1-8 mullet is worth \$1.60 the 1 6-8 ought to be worth three cents apiece.

Q. You think that what Onslow County needs is a law changing the size of net and enforcing that law?

A. Anything smaller than 1 3-8 inch ought not to be allowed to fish in Onslow County. That will increase the fish. I see a change every year—less fish. Let the 1 1-4 and 1 1-8 inch fish go only another season and they will be 1 1-2 to 1 5-8 size. They grow very fast. They are just scunning them up by the hundreds, as you might say. A 1 1-4 to 1 1-8 inch mullet is not fit to eat.

Q. Where are the fish marketed that you catch?

A. Sold right here to the hucksters and in the fall a good many come from down east and ship them from here.

Q. Do you think it would do any good to pass a law that one-third of the river should be kept open all the time?

A. I don't. Give every man his sway.

Q. You think they ought to be allowed to fish all the way across?

A. They ought to be allowed to catch them wherever they can catch them.

Q. You are engaged also in the oyster business?

A. I have dealt in them some. Have a clam garden now, but no oyster garden.

Q. How much land is in your clam garden?

A. Only one-half acre.

Q. Do you think the clams flourish there very well?

A. Yes, they increase there.

Q. How long have you been cultivating the clam garden?

A. I have had it ever since 1904.

Q. Do you plant shells there every year?

A. No; just put the clams in the water.

Q. On that one-half acre how many clams do you catch?

A. I have no idea. I buy clams and put in there some seasons and some seasons I don't.

Q. About how many bushels do you ship a year?

A. I put in about 200 bushels there one year and I have shipped only about 190 bushels out of it.

Q. Are there many of your neighbors interested in the clam business?

A. This is the only clam garden on the river.

Q. How many of them have an oyster garden?

A. I could not tell you.

Q. Are there any oysters shipped from that section?

A. Not a great many. Oysters are falling behind of what they have been.

Q. What do you think is the cause of that?

A. Our best oysters are what are called the shell oysters. I think the rocks have been muddied up and the oysters sunk by the large tongs. The mud and sand have drifted over the rocks and killed the oysters.

Q. Are there any natural oyster beds besides these oysters that you speak of?

A. Plenty.

Q. Are there any oysters on these?

A. Yes.

Q. How many oysters are shipped from there?

A. I could not say how many. Down below there are a great many natural beds and they use them for plants to put in the gardens. The more they take off the better the oysters get.

Q. Does anybody plant any shells down there?

A. They usually plant oysters instead of shells.

Q. How do you go about planting clams?

A. I buy them and spread them out.

Q. Do you put small clams and permit them to grow?

A. Yes; buy all sizes, small and large.

Q. In taking them up, do you select the size you wish and put the small ones back to grow?

A. No; I take them all up just as we can get them. Small ones are worth more than large ones.

Q. What do you gain by your planting, that you can have the clams when you want them?

A. Yes; you have the clams when you want them, for in the winter and fall season we can buy them for 60 cents and we can get \$1.25 and sometimes \$2.50 a sack for them later on.

Q. Do you raise what is called the little neck clams?

A. Little neck.

Q. What do you get for a bushel of oysters?

A. Generally get about a dollar for good marketable oysters.

Q. That is, a dollar delivered?

A. Delivered right to the cart. They haul them to Wilmington.

Q. You go in more for clams than you do for oysters?

A. Yes, and ship them north.

SENATOR BURTON.

Mr. Chairman and Gentlemen of the Committee, Especially Mr. Chairman:—I appreciate the kind things you have said about me. I have read somewhere in Holy Writ that certain good people were upon accord in one place. I think this fish proposition gave the Legislature more trouble than any other proposition, except the wet and dry contest, that came up in the session of 1907. The only thing I know about fishing is getting a bucket of bait and a chew of tobacco and sitting down on the side of the river. But the people of this county, as far as I have been able to learn, feel that they should not be brought within the operation of the fish law that will make them subject to a tax. The people on this river are poor people; they are not fishermen alone, but farmers. They fish until housing time. Then when they get through housing their crops they fish right on until spring. The fishing is not lucrative. From a financial standpoint it does not pay. They have to live from hand to mouth, and they feel that if a tax is imposed on them that the wolf will come to the door. There are no regular fishermen on this river. The people up and down New River, not being regular fishermen, feel that if they had to pay a tax on their nets they would have to quit the business. For that reason they have asked me to beg you gentlemen to look at this side of their cause and if you possibly can to give the remedy suggested by some of the gentlemen here as to fixing the size of the mesh, and also save them from taxation. That is what they want. We are peculiarly situated. This river just affects Onslow County, and

there are no counties above Onslow to grumble about the fish being headed off. The oyster business I am unable to say anything about. I have heard several of these gentlemen say that oyster planting down below the mouth of the river has been much of a failure. The storms we have had for several years seem to sweep the sand over the planted oysters. I don't suppose it has any effect on the rocks, but it sweeps the sand on the planted oysters which has made them unremunerative. I don't think any of the down-river fishing prevents the circulation of shad up the river. Some years we have a good many shad and other years little at all. It is a cause of nature about which I am unable to say anything.

Q. Do you think it would increase the number of shad if we could get the United States government to deposit fry in these waters?

A. We have done that several times, myself and others, and got the government to plant in here two or three times within the last ten years, but I can not say that the shad supply is any greater than it was before. Whether the fry was dead when brought, I am unable to say, but I don't think it increased the shad supply at all.

Q. Do you know from which one of the hatcheries that fry was brought?

A. No.

Q. Do you think it would meet the approbation of your county if all the laws were repealed and you were left free to fish when and where you wanted to?

A. The people can not agree. If you want to take my view of it, I do not think it ought to be done.

Q. Could you suggest any change in the oyster laws as far as this county is concerned?

A. I could not. I know so little about it that I would hate to undertake to suggest anything.

Q. Do you think that if the State would have a more effective patrol so as to protect the people after they plant their gardens, that more people in the county could be induced to go into the business of planting oysters?

A. I am under the impression that all the oyster ground that would pay is practically taken up.

Q. That is, all the ground that has any oyster rock on it?

A. All the ground that is profitable for paying oysters.

Q. Do you know whether any of those who have planted oysters have done so on ground that did not apparently have any rock on it?

A. Several years ago an oyster company was formed which came two miles up the river from where the oyster bed bottoms were and planted quite a lot of oysters and spent quite a lot of money and bedded several

thousands of bushels of oysters in what is called Stone's Bay; pretty soon there came a freshet and a storm which destroyed what they had done. Unless some natural conditions can come about by which the increase of salt water now coming in is stopped, the oyster gardens will have to move farther up the river. If the grounds are increased by reason of that it might give more chance for planting.

Q. Is the United States government now dredging down there?

A. They have been doing some dredging between New River and White Oak River.

Q. Is that in Bogue Sound?

A. It is on Brown's Sound, between our river and Bogue Inlet. The salt water supply seems to have been increased since they began that work of dredging.

MR. B. J. POLLARD.

Oyster Commissioner of Onslow County.

Q. How many years experience have you had with the shell fish?

A. Since 1890.

Q. Have you had experience as a practical oysterman on the natural rocks?

A. Yes.

Q. How many years experience?

A. I have been assisting in a small way ever since I was ten years old.

Q. Do you fish on the natural rocks in this neighborhood?

A. Yes.

Q. Have you oystered anywhere except around here?

A. Nowhere except New River.

Q. What was the condition of the natural rocks when you first began oystering on them?

A. The foundation was in good condition; the oysters were scarce in some parts, but not as scarce as they are now.

Q. Have you any idea what produced that scarceness?

A. I think they were overworked.

Q. They had been overworked when you began as a boy?

A. I have thought so for quite awhile.

Q. Do you think that anything could be done to improve the condition of the beds?

A. I think all the rocks that produce good merchantable oysters should have the small oysters left on them and take the planting spat from the main rock.

Q. Why do you make that distinction?

A. The place where they produce the seed oysters is so overcrowded that they do not get large enough to market.

Q. What you call the main rock never produces marketable oysters?

A. Sometimes. They were larger last fall than in quite a while, due to storm freshets.

Q. As a matter of practicable regulation of the fisheries could that be done? Can you compel or require the enforcement of a law as to the catch of oysters from what you call the seed rock?

A. I believe it could be done. Our people usually seem to be willing to obey the law.

Q. Do you think they would be willing to submit to that supervision?

A. Yes; in our territory they fish all the year, but certain territory is prohibited.

Q. Why don't the oyster gardens succeed?

A. My experience is there is not one acre in ten where an oyster will live, but that the sand will kill it.

Q. Are these planted beds on places which were originally natural rock?

A. No.

Q. Are any of them on such places?

A. No; once in a while a small place will be broken up.

Q. Suppose you were to take these areas which were originally natural rock and to lease them out as gardens, could oysters be profitably raised?

A. I don't think that would do, because it is deep water where they are; from four to ten feet.

Q. You don't think that would be profitable on those?

A. I hardly think so. It is only about two and a half miles of the river that you produce the oysters.

Q. Do you know they are profitably raising oysters in water seventy feet deep?

A. It might obstruct navigation here.

Q. Could anything be done in this neighborhood to induce the men to take up oyster culture and to make it a success?

A. I am unable to give any definite answer.

Q. How many acres in this county are devoted to the cultivation of the oyster?

A. I could not tell. I think there have been about 800 applications and perhaps 750 of these taken up. They might have eight acres to the application, and if you take one-tenth of that you will get about what it is worth.

Q. Do you think there is any territory in the county that would be adapted to the cultivation of the oyster that has not been taken up?

A. None, except what is called the broken-down natural beds.

Q. What would you say would be the area of that?

A. Small.

Q. As much as 1,000 acres?

A. No.

Q. Is there any oystering above Swansboro?

A. Eighteen miles east of where I live and I don't know much about it there.

Q. What suggestions can you make in regard to that law?

A. I don't know that I could make any.

MR. R. B. JARMAN.

Q. What recommendations have you to make to the Committee?

A. I don't know that I have anything special, excepting protecting our interest at the mouth of the river. Keep that open so that the fish can pass and be free for all.

Q. How near to the inlet do you think the men ought to be allowed to fish?

A. Three miles. Nothing below Hatcher's rock.

Q. How near is that?

A. Three miles.

Q. You think fishing should be prohibited within three miles of the inlet?

A. A mile on each side I think would be sufficient.

Q. A mile on either side?

A. Yes.

Q. How much of the river to be kept free for the passage of fish up and down?

A. I don't know as there should be any. I don't know that we would need any particular part set aside for the passage of fish.

Q. How wide is the river?

A. Will average three miles. It is about a mile and a half where the fisheries are.

Q. What is the depth out there in the middle of the channel?

A. I think it will average about ten feet.

Q. What sort of nets are used in the river there?

A. We use drop nets, principally gill nets, cotton nets, from 1 1-4 up as large as they want. We use 2 inch and 2 1-4 for the mullet and trout.

Q. Are there any black bass or chub caught in the waters of this river?

A. A few. A good many are caught up the fresh water streams.

Q. Any person engaged in catching these for shipment?

A. I think not. Most of them are taken with hooks by sportsmen.

Q. They do not engage in it as an industry?

A. No.

Q. From your experience as a fisherman, do you think it would be practicable for the government to deposit a number of white shad fry in these waters?

A. I hardly think it would.

Q. You don't think they would do well?

A. I don't think so. We have a very shallow inlet and the current is sluggish, and I don't think they would do well.

Q. How about the oysters?

A. I don't know much about them. I don't believe that very many good ones are in here now.

Q. Do you think that is due to the fact of their having been scraped off so clean?

A. They say so. A good many of the beds are dug up for clamming and they have gone to mud.

Q. Has the clam industry increased in the county during the past few years?

A. They have been getting a good many more to ship.

Q. Are there more people engaged in it?

A. I think that's the size of it.

Q. Any people planting clam gardens?

A. Not that I know of?

Q. What suggestions would you make as to the improvement of the oyster industry?

A. I could not make any.

Q. You stated that there was a law covering the setting of nets around the inlets and if that law could be enforced it would be of benefit to the people up the river. Isn't that law enforced?

A. I hardly think it is exactly like it ought to be. I don't think the fine is as large as it ought to be.

Q. It is the carrying out of the act that is not satisfactory?

A. Yes; it is the machinery of the act that is not satisfactory.

Q. Do you think that the fishermen would be so benefited by the enforcement of that act that they could afford to pay twenty-five cents a year to have that law enforced?

A. I should think so.

Q. Do you think that the law could be more effectively enforced if it was enforced as a State law rather than a county law?

A. I do.

MR. U. G. CANNADY.

Q. Where do you fish?

A. I do not fish at all. I am an oysterman.

Q. Are you engaged in oystering on the natural beds?

A. I take up seed; that's all.

Q. You have an oyster garden?

A. Yes.

Q. How large is it?

A. I have about a couple of hundred acres.

Q. Is it all seeded and planted?

A. It is all planted, but some of it is not any account. The water got too salty.

Q. How many oysters did you ship from that last year?

A. I don't know; it seems to me I ship less and less every year. I can not tell you exactly how many I do ship. Not many. The water is so salt until our oysters have gotten very small. And, too, the clams are killing out the oysters. The government has gone and cut a channel through the inlet and made the water saltier than ever before, and that is what is killing out our oysters. I used to have only ten acres of ground and got more oysters than I do out of 200 now. The water then was just brackish, but since the government has been cutting down around the inlet and let more salt water come in it has played the mischief with the oysters.

Q. Do you think any mud comes from that cutting?

A. No, I don't think any mud comes, but just pure salt water.

Q. What was the bottom like before you began?

A. Some muddy and some sandy.

Q. Were there any clams there before you began?

A. No, it is the salt water that has ruined our oysters.

Q. When you plant oysters do you cull them, or just take them as they come from the natural rock?

A. We just take them as they come from the natural bed.

Q. You simply throw overboard trash, etc.?

A. We stand right in the boats with tongs and what we get we throw right in.

Q. When you plant them, you don't throw out the rubbish?

A. We throw it all out together.

Q. You throw mussels with it?

A. Yes, some parts of my garden, the mussels run them out.

Q. Don't you think it would be better to cull them?

A. I don't know. I have tried that but it seems you can not get many at that. We need them rocks particularly.

Q. You don't need any mussels?

A. No, we don't need any mussels. When we scrape off the coon beds it makes them better the next year.

Q. You think the trouble then is not in the method, but owing to the salt water?

A. Yes, it is the salt water. I used to raise them, but cannot do it now.

Q. Where do you get your fine oysters

A. We used to raise them, but not lately. We can not get those fine oysters now.

Q. What was the highest price you got for the oysters you sold last season?

A. The very best I got was \$1.25 per bushel.

Q. What was the lowest price you took last season?

A. About 60 cents, 50 cents, and along there.

Q. Do you know how many acres of land in this county are adapted to oyster culture?

A. I own about 200 acres myself.

MR. J. W. BRINSON.

Q. Are you a fisherman or an oysterman?

A. I am not a fisherman now and never was an oysterman. I did fish about 30 winters, commencing about the middle of September and finishing up about the first of March of each season.

Q. In your opinion has the supply of fish decreased in the waters here?

A. There are about as many fish caught as there ever were, but it is decreasing to the share. So many more people fishing than twenty-five or thirty years ago, perhaps twenty to one. The prices then were not so high as now, but more were caught to the man.

Q. Is the quality of fish equal to what they were then?

A. I don't think we hardly have as large a trout as we have had in times past. The mullet is about the same size, but altogether we don't catch as large fish as we did years back.

Q. What is your idea about the size net that should be fished?

A. When I was a fisherman we used all the way from 1 1-4 to 1 1-2 inch mesh. A mullet is a thing that is numerous at one time and scarce at others. It looks like making a waste of the little ones to catch them when they are so small.

Q. Do you think any limit ought to be fixed on the size of mullet that should be sold?

A. I would hate to suggest that.

Q. Have you any recommendation to make to the Committee?

A. I don't think that I have, particularly. When I was a fisherman my fishing territory was from Hatcher's Rock to Jacksonville, here. After you get to the head of Hatcher's Rock the river becomes very narrow and some good deal of tide. After you get to the head of Hatcher's rock is something near a mile across, and then it varies from one to

three miles before you get up here. The fish has to come through a narrow stream of water of about a mile and a half or two miles long, and in this small, narrow place it looks reasonable to suppose that nets in there would turn them back. I think it would be very beneficial to the up-river fishermen to have some protection at that narrow water near the inlet and at the inlet to let the fish come up where they could spread out.

Q. What protection would you suggest?

A. We have a law, but I don't think it is enforced.

Q. Something to prevent them from fishing near the inlet? What distance.

A. I never read it. You heard it discussed here yourself.

Q. If the law was regarded, you think it would be beneficial?

A. I am satisfied it would be for the up-river fishermen. Take a fish in a narrow channel and let him get to the mouth of this place where it spreads out a mile and he could not be captured so easily.

Q. Don't you think it would be beneficial to the fishing interest of this county to have a Bureau of Fisheries, with the proper laws passed and have an official enforcement for the whole State?

A. I have thought so.

Q. Would it not be better for those who engage in the fishing business?

A. I think so.

MR. L. M. LAUDEN.

Q. How long have you been engaged in the fishing business?

A. I don't fish a great deal, but buy them.

Q. Are you a fish dealer?

A. For about fifteen years.

Q. Do you see any decrease in the number of fish caught in this county?

A. No; there are more fishermen and more dealers and that makes fish scarcer for the individual fisherman.

Q. Can you suggest any changes in the style of the nets that are used as to size of the nets?

A. If we could have a State law that would reach us sufficient, I think 1 1-2 inch nets would be a better size than 1 1-4. If the roe mullet could be protected I think that would help some.

Q. Do you think there should be a closed season provided, after which there should be no fishing?

A. I can hardly tell. It would put a hardship upon a good many people.

Q. Would it not, in a year or two, increase the supply of fish so that they would ultimately be benefited.

A. I can hardly tell. The fish come here and go out again when they are not caught.

Q. Do you think it would be advisable to have any part of the channel of the river protected, so there could be a free passage?

A. I think near and around the inlets should be protected, both inside and out.

Q. Hatcher's Rock. You think that the channel narrows up there?

A. Yes, and the water is shallow.

Q. You think there should be a law that they fish a certain proportion of the channel?

A. Well, it looks like it would be a very good thing, but there are people there who are taxed very high, and they live on these borders.

Q. Are they taxed any higher than in any other part of the county?

A. Yes; they are taxed higher than people farther up the river.

Q. Is that a local law for this county?

A. The valuation is higher on their land.

Q. What is the valuation of land down there?

A. Land producing 400 pounds of seed cotton to the acre is valued at \$25 per acre by the assessors of this township. Our land down there has even a greater valuation placed upon it merely for the privilege of fishing and oystering.

Q. Does that extend all the way up and down the river?

A. No.

Q. What is the land on either side of the river assessed at?

A. I don't know.

Q. Are you being taxed at that rate?

A. Yes.

Q. You live on the west side of the river. What is your neighbor on the other side assessed at?

A. It runs according to the distance he is from the water.

Q. What suggestions would you make as to laws that might be passed to benefit the fishing?

A. I hardly know. They might make some that would be better for some and worse for others. It would undoubtedly be better for the general fishing industry if the lower part of the river and around the inlets was entirely protected, but then it would work a hardship on those people who live down there.

Q. How would it be for the fish?

A. It would give the fish more privilege.

Q. Are there more small fish brought to you at the present time than there were a few years ago? Are the fishermen trying to market more small fish now?

A. No, there are not as many, because there are more buyers.

Q. Can you make any suggestion as to the size of fish that should be sold?

A. I don't think so. I think it would be a very good thing if there were not any fish allowed to be caught under 1 1-2 or 1 3-8 inch mesh. Fish caught in a net under this size are so small and it takes so many to amount to anything. I have heard of them being caught and put on the market not over six inches long.

Q. Do you think there ought to be a law prohibiting a dealer from having in his possession a fish under a certain size?

A. Fish buyers are like everybody else. They generally buy fish as cheap as they can get them and the fisherman tries to get what he can for them.

Q. Does that increase of the assessment of the land extend all up and down the river?

A. Petty much so.

Q. How much higher rate of assessment do they have along there than at other places?

A. Something near eight times higher.

Q. If the inlet and the lower part of the river was protected and you fishermen who use gill nets would be surer that the law would be enforced, would you fishermen object to paying a small tax?

A. We need a protection at New River Inlet against haul nets and other nets set on the beach by non-residents of this county. They come in from Carteret County, from all up about Morehead and Beaufort and fill in all around the inlet with these haul nets. We who fish drop nets can only fish once in every five or seven hours; them fellers will come there in their sharpies, put one stake to the beach and run off, say 50 or 100 yards down the beach, and will fasten one net to another until sometimes they fish with the net 500 yards long. There is another kind of fishing down in New River, and that is the trout fishing. Those fellers set their gill nets and let them stay for weeks and months at a time. When the trout come in the river they come up to those nets and turn and go out. If these set nets were not put in there from the first of January these trout would come up in this river, and the people all along the river would have a chance to catch them. The supply of fish don't fall off much here, only in cold weather. We had a good supply of trout here last winter, and one the winter before that, and if the winter is bad it kills them out. Trout are like white shad, the river they usually go to they go to every year. The big trout seem to have been killed out by the cold weather.

Q. These nets that you were speaking of that should be removed—do they extend all across the river?

A. The fellers I was speaking of come from Morehead City in

sharpies. They don't fish in the river, only on the outside, in stake gill nets. As far as gill nets are concerned they are no damage to the fishing because it is only once every five or seven hours a man can run his net.

Q. Suppose we pass some effective law that would protect the fish after they come up the river—would the fishermen be willing to be taxed 10 cents per hundred yards of gill nets if they knew the law was going to be enforced effectively?

A. I could not say.

Q. Would you, personally, be willing to pay the tax?

A. I would be willing if the law was enforced effectively to keep away the set nets and seines from the mouth of New River, that the non-residents of this county come and set. If there could be a law passed to prohibit the setting of nets on the back of the beach and hauling nets around the mouth of New River, I would be willing to pay the tax of 10 cents on the hundred yards of gill net.

Q. How much of that land is there that they complain of being assessed at an excessive valuation?

A. The eastern side of the river does not seem to be assessed so high as the west side.

WILMINGTON MEETING.

JULY 23; 1909.

Meeting called to order by Chairman and purpose explained.

MR. J. H. SULLIVAN.

Q. Where do you live?

A. Scott's Hill, Pender County.

Q. In what business are you engaged?

A. I am engaged in fishing and shrimping.

Q. How long have you been engaged in the business of fishing and shrimping?

A. About fifteen years.

Q. Do you notice whether there is any increase or decrease in the number of fish found in your waters.

A. I notice that we have had a decrease for the past five years.

Q. To what do you ascribe that decrease?

A. Fish don't raise in our waters much. We have shallow waters; fish come in and out.

Q. What kind of fish do you catch in these waters, mainly?

A. Mulletts, trout, pigfish, bluefish, etc.

Q. Do you catch any white shad or herring?

A. No white shad; hickory shad in the spring.

Q. What suggestions would you make to us as to what could be done to increase the number of fish?

A. Our folks have a law now for seines 1 1-8 inch bar, which means 1 1-4 inch mesh. The majority of people as a rule order the seines 1 1-8 inch and tar them. When a seine is tarred it draws up. I would suggest if a seine has to be tarred it should be ordered enough over 1 1-8 inch so that it would be this size when tarred.

Q. Do you think a 1 1-8 inch mesh is too small for the seine or do you think, for the benefit of the fish interests, it ought to be larger?

A. I do not know that it ought in these waters.

Q. You mean 1 1-8 inch after tarring?

A. Yes, 1 1-8 inch after tarring. The law was established before the tarring of seines came about much.

Q. Doesn't that law mean that the net as used should be 1 1-8 inch.

A. It ought to mean that. We order from the factory 1 1-8 inch and then tar it, which draws it up to an inch.

Q. Do you think it would be advisable to prescribe any length below which the fish should be caught?

A. I don't think it would because our seines are very limited in length.

Q. What size fish do you think ought to be permitted to be caught?

A. I can not say about that, because I have never taken particular notice of the sizes of fish.

Q. I believe you said that mullet was the principal fish that you caught in these waters?

A. Yes, this time of the year mullets are the principal fish in our waters?

Q. How large are the mullets that are one year old?

A. I don't know the age of them. I never caught any young ones and watched their growth. I should judge they were not very large.

Q. Is it a fish of very rapid growth?

A. That is hard for me to tell. I should think a fish two years old would be a roe mullet.

Q. How large would that be?

A. That would be, I suppose, 1 7-8 inch bar to catch a roe mullet; from that to 2 inches.

Q. Do you think there ought to be any closed season during which the fish should not be caught?

A. No, I never took any notice of that. I should not think that would make a great deal of difference.

Q. Do you think that fishing ought to be permitted in these waters all the year round?

A. I should think so. There are fish all the year that are salable. They have been very scarce for the past year or two, however.

Q. I suppose different fish prevail at each season of the year?

A. Yes. We have a fish for each season.

Q. When you are fishing for fish during a certain season, don't you often catch fish that ought not to be caught?

A. Yes.

Q. What becomes of them?

A. They are turned loose some of them; some are pulled on the beach and left there to die. As a general rule they pull the small ones out that they don't want and let them die.

Q. What proportion do you think are allowed to die on the beach?

A. I should think 10 per cent.

Q. Isn't it more than that?

A. That is a low estimate.

Q. Are any of these food fishes used in the menhaden fish factories here?

A. I don't know about that. I have heard they use mullets in the menhaden factories.

Q. You are particularly interested in the shrimp industry?

A. This time of the year I am.

Q. Could you tell us the value of the shrimp sold from your part of the county in one year?

A. A rough valuation would be rated at perhaps \$2,000 a year.

Q. What kind of net do you use in fishing for shrimp?

A. As a general rule they say 1-2 inch mesh; but I have been for the last past two years using 5-8 inch bar, which makes 1 1-4 inch mesh. It is more successful in catching the larger shrimp.

Q. If these persons who use smaller mesh than you are speaking of, when they catch these smaller fish, what do they do with them?

A. Some use them for fertilizer; some for other purposes; and some not at all. They throw them away.

Q. Has the supply of shrimp increased or decreased?

A. The supply of shrimp has decreased greatly.

Q. What per cent in the last five years?

A. I should say 50 per cent in the last five years.

Q. What suggestion would you make to increase the supply of shrimp?

A. I would suggest that shrimp seines should not be used any less than 5-8 inch bar, which is 1 1-4 inch mesh.

Q. Is there any regulation in this county or your own county prescribing the size of the mesh?

A. No.

Q. In fishing for shrimp do you also catch fish?

A. Sometimes we catch a few; not a great many.

Q. What do you do with them?

A. They are used for fertilizer; a great many of them.

Q. Nearly all of them are killed?

A. I think so.

Q. Don't you think that it has a tendency to decrease the amount of fish?

A. Not a great deal. The shrimp seines are not very numerous yet awhile; but the decrease in fish has been for the past five years.

Q. During what season do you catch them?

A. We usually catch them from the first of June to the first of October.

Q. Do you think that in order to increase the supply of shrimp any limit should be put upon the season in which they can be caught?

A. I could not say about that. The first of the season we have pretty good shrimp and later they get sorry; the smaller ones come in, and in the last of the season we have good ones all the way through.

Q. What is the spawning season for shrimp?

A. I could not tell.

Q. Is it possible to liberate the small shrimp?

A. Yes.

Q. Do you do so?

A. We take them right up. When we have small shrimp they die very quickly. I would suggest that we use the 5-8 inch bar.

MR. JERRY HEWLETT.

Q. Where do you live?

A. On Greenville Sound.

Q. How far from here?

A. Between seven and eight miles.

Q. How long have you been engaged in fishing?

A. Somewhere about forty-odd years. Ever since the war.

Q. What kind of fish do you catch?

A. Catch all kinds.

Q. What is your most available fish?

A. Principally mullet.

Q. What size bar do you use?

A. One and one-eighth inch bar. Some of them use 3-4 inch, some inch; all the way along.

Q. When they use a smaller sized mesh, do they not catch a great many fish too small for use?

A. Yes; they are just killing all the fish up.

Q. You think one difficulty is the small size of the mesh?

A. Most of the people that fish say that it is killing the small fish out and making compost out of them. One little shrimp net soon will kill more little fish than we catch in New Hanover County. They have them so deep now that they go in the holes and catch everything up.

Q. Suppose there was a law to prohibit shrimpers from taking fish, could they liberate these fish before they would die?

A. I do not think they could, because of this hot weather; and by the time they could get them up where they could pick them out they would all drown.

Q. What in your opinion is the proper size mesh?

A. I think the present length and depth of shrimp seines ought to be done away with.

Q. Are there any shrimp in the deep waters, too?

A. Yes.

Q. If you were to do away with the shrimp seine for deep waters you would have a fight with the shrimpers, wouldn't you?

A. Yes; but if you allow any smaller mesh than 1 1-8 inch mesh fished you would kill up all the little fish with the shrimp seines. A 1 1-8 inch seine would not kill them, and if they use a skim or dip net which is made with a bar across each end, and about eight feet wide, and shrimp get in it. Then they have a cast net that always catch shrimp which will spread. They won't kill up the little fish with either one of them.

Q. Will you describe that cast net?

A. A cast net is small at the top and widens down; is a net with goers and a five-foot cast net will spread over a space of ten feet. They have round leads on them and lines and when you pull that it spreads right out in a circle. When you pull in that circle it scrapes the bottom. You draw it up with a line with your hand and catch it by the horn, and when you do the shrimp fall right out of the boat.

Q. Could shrimp fishing be profitably carried on if they were restricted to the dip net?

A. Yes. They could catch all the shrimp they could do anything with, and bigger ones.

Q. How long have they been using seines?

A. They have not been using them a great while. They get larger and larger every year.

Q. When did they begin using seines?

A. There have been some seines ten or fifteen years back. I only knew one here in our county at that time. I went out fishing last Saturday and I went to one of the seines to get some shrimps that were hauled by the deep seines in Masonboro Creek, and they had bushels of

little shrimp to make compost out of them. They had four bushels of fish and three barrels of shrimp.

Q. What size fish were they?

A. Some trout, some little drum, mullets, etc.

Q. Were any of these fish marketable fish?

A. Yes; a few.

Q. What proportion would you say?

A. Out of the lot they had about two or three bunches of edible fish. The same seine now has at least 15 or 20 bushels of little fish and shrimp piled up in the pen making compost out of them. They will fish the seines from now until late in the fall and every little fish caught they put on the compost pile.

Q. How often does that occur?

A. Every day.

Q. Don't they often catch considerable fish and no shrimp?

A. Sometimes they might, but they are always bound to catch some small fish and shrimp.

Q. The occurrence that you speak of is rather unusual?

A. No; sometimes they catch heap more than that. They did not haul but three or four hauls that day.

Q. If that is the usual occurrence, would it pay them to fish for shrimp?

A. Sometimes they catch two or three bushels of small fish and five bushels of shrimp.

Q. This occurrence that you have just mentioned is not unusual?

A. That is a general occurrence with the shrimp seines where they haul in the creeks.

Q. What do they give a quart for shrimp?

A. Two quarts for a quarter.

Q. Would you suggest a closed season for fishing and shrimping?

A. I think everybody ought to catch them when they can. The shrimps are only here in the summer time. The small mesh seines are bound to kill up the fish.

Q. Your idea is that the remedy is a larger mesh?

A. One and one-eighth inch is what our law is now, but if you make it that for shrimp it would not pay.

Q. I am talking about a larger mesh for shrimp.

A. I think about 100 mesh deep of 25 or 30 or 40 yards will do just as well as what they fish now.

Q. How long are the seines?

A. Some are 75 yards long now.

Q. You think they ought to be half as long?

A. A shrimp seine like it's used now would be 40 feet deep.

Q. Could you state how deep a 40 mesh seine is?

A. They can haul 10 feet of water with them now. When you hang a seine or net it nearly doubles the depth because they hang it in a triangular shape. Most of the people down around the sound now use the shad seines, which are 1 3-4 inch mesh.

Q. How deep are the seines they have now for shrimp?

A. I mean the purse seines for menhaden. They sell off these seines now to the people at a reduced price, less than they can order them for, and they get them and kill up the fish fore and aft. They dump them on the shore and let them lie and rot.

Q. Do they catch shad in these seines?

A. I don't know; they catch everything that gets in them.

Q. What do you mean by shad; you don't mean white shad?

A. I know very little. About four or five years ago one of the fish boats came out opposite us and struck mullets in August. They loaded the boat with the August mullet. They went into Moore's Inlet, put the mullets on the cars, and when they got here they were all rotten. They had to give them to men here to make compost. Fall before last this shad factory down the river it is said caught 300 bushels of little mullets. They could not sell them and carried them back down the river.

Q. What would you think of a law combining the fish, oyster, and shrimp interests, and making a Bureau with a Commissioner and Board of Directors to make rules and regulations for the different counties and to enforce the law?

A. I think that would do very well. Our county has very shallow water. With 1 1-4 inch seines our people would not catch enough to eat only one or two months in the year, but make it 1 1-8 inch and they would catch all the year round. I think that would be a proper way to do it. We have no protection now.

Q. Do they violate the law?

A. Yes; every day.

Q. Are they indicted for it?

A. No.

Q. Why?

A. No one wants to bother with them. No one wants to get the prejudices of another.

Q. Do you know of an instance where one has been indicted and convicted for violating the law?

A. No; I don't know of any.

Q. But you do know that they fish smaller seines than the law permits?

A. Yes; nets and seines both.

Q. What would be the condition if you had the law repealed entirely?

A. It would be just about like it is now.

Q. If the law was obeyed would it be of any value to you?

A. Yes; I think it would be a big value.

Q. Where do shrimp breed and spawn?

A. In the creeks and about in the sounds. We have a shrimp that is called a "mammy" shrimp which set the whole year round and these are the ones that lay eggs.

Q. Have you ever seen them with eggs?

A. Yes; they carry them underneath.

Q. At what season of the year have you seen that?

A. Along in the spring.

Q. Are there any nets fished here other than seines?

A. Plenty of them; more gill nets than anything else.

Q. In what waters are they fished?

A. Fished in the same waters as the seines.

Q. Are they fished all across the rivers and sounds?

A. In the sound, yes. All about in different places.

Q. Do you think that they obstruct the passage of fish up the stream?

A. No.

Q. Do you fish gill nets yourself?

A. No.

Q. What do you think of the proposition to prohibit the fishing of all nets on a certain proportion of the river?

A. I never fished a net in the river; only fish in the sound and outside on the back of the beach.

Q. Do you ever get any white shad?

A. Once in a while, along in May we may catch one or two.

Q. Do you know anything about the white shad in the river?

A. No.

Q. Do you think the gill nets that are fished in the sound do any harm?

A. I think they kill up the small mullets in the winter time.

Q. Are there any pound nets in use in this county?

A. No.

Q. You have been engaged in fishing all your life?

A. Yes; on the coast. Not in the rivers.

Q. When you were a young man were there any white shad that came up the river?

A. Yes; plenty of them. My father and older people always shadded in the spring of the year.

Q. Are there many that come now?

A. They say not. You don't see many about in the spring.

Q. From what you have heard others say, to what do you ascribe the decrease?

A. The stake nets. Most all lay it to the stake nets.

Q. Is that a pound net?

A. It is a net that is set on stakes and the shad go and get in. A pound net is, I suppose, something like a purse seine.

Q. You think the people who engage in that industry ascribe it to the fact that there are too many stake nets set across the channel?

A. Yes, and all up the river, that is below Wilmington. None are set across the channel; they are set along the edge of the channel. I have heard old fishermen of shad say they could see long strings of shad lying on the bottom when the tide would turn. A shad will give up mighty quick.

Q. How would he fall out of the gill net?

A. He would not be far enough in to hold his weight when the tide turned the opposite way.

Q. Do you think that it would be advisable to pass a law prescribing that no mullets should be caught or be in possession below a certain length?

A. That would be almost equal to a 1 1-8 inch mesh seine.

Q. You could accomplish the same purpose by regulating the seine?

A. Yes. A seine large enough for that mullet to get through would not catch it.

Q. You have stated that you catch all sorts of fish. Will you state what are the principal kinds of fish you catch?

A. Spots, bluefish, trout (different kinds); and all fish that go in salt water. Some bluefish two feet long.

Q. Do you catch any large bluefish?

A. Sometimes catch a few.

Q. How large?

A. Medium size; 12 or 14 inches. We catch them along in the fall of the year along the beach.

Q. Do you catch any mackerel?

A. Yes.

Q. Do you fish on the other beach?

A. No.

Q. Do you catch any sturgeon?

A. No.

Q. Has any one ever caught any sturgeon there?

A. They catch one or two sometimes with the haul seines in the sound.

Q. Have they ever fished sturgeon gill nets off there?

A. No; not that I know of.

Q. Is there any particular matter you wish to mention to the Committee.

A. Nothing, only doing away with the small mesh seines and the purse seines.

Q. How close do they fish these purse seines to the inlets?

A. When they struck the August mullets the other fall, they struck them within half a mile of the beach, and about a mile of the inlet. Last fall and fall before last they lay all around the inlets.

Q. Do they do that as a regular thing, or is it exceptional?

A. That was the only boat that did that.

Q. What do you think of a law prescribing the distance nets ought to be set from the inlets?

A. I don't know. I don't think that would do any good except for the purse seines.

MR. WILLIAM HOLLIS.

Q. How long have you been engaged in fishing?

A. I don't know, about 20 or 25 years.

Q. Where do you fish?

A. In the sounds.

Q. Have you any recommendations to make to this Committee that you think will be beneficial to the fishing interests?

A. I don't know. I think if they would regulate the seines and nets to 1 1-8 inch mesh that it would be beneficial.

Q. Have the law and enforce it, in other words?

A. If it is not enforced it is no use to have it.

Q. What method would you suggest of enforcing it?

A. I don't know of any way but to have some one go and see that the nets are in that shape.

Q. Your idea would be to have a deputy commissioner in this county?

A. We would have to have something like that. One fisherman is not going to indict another if he can help it.

Q. What are the principal fish that you catch?

A. Mostly mullets; trout along in the spring of the year.

Q. Would you approve a law prescribing the length of fish that should be caught or marketed?

A. Could not get at that. You could only regulate the size of mesh. If you get a lot of fish in a seine you are obliged to get some small ones. They can not all sift through.

Q. Is there any practicable way of liberating the smaller fish and keeping the larger ones?

A. No; you could hardly do it.

Q. Suppose there were a law passed that prohibited a dealer from

having such a fish in his possession and a fisherman from having such a fish in his possession; don't you think that would prevent the fisherman from catching such fish?

A. I don't think they ought to be used for fertilizer. When you strike around a school of mullets lots of times there are small ones in amongst them, and you can not help but catch them, unless you turn them all loose.

Q. Could you liberate these?

A. No. Not until they were dead.

Q. Could you say that a shrimp seine was very destructive?

A. I could not. I never saw a shrimp seine hauled half a dozen times in my life.

Q. Do you fish any on the outside?

A. No.

Q. Is there any oystering done in your section?

A. Yes; we have the oyster down there.

Q. How is the supply of oysters now, compared with what it was ten years ago?

A. Not one-tenth as many.

Q. To what do you think that decrease in oysters is due?

A. Owing to the catching of them and the salt water breaking through the inlets have killed a lot of oysters.

Q. Are there any people in your section of the county engaged in planting oyster gardens?

A. I don't think there is to amount to anything.

Q. Has it ever been done in that section?

A. No.

Q. Do you think that your waters are such that if persons could be induced to go into it, it would be profitable?

A. I do not know that it would.

Q. How did the salt water kill these oysters?

A. The water is more salt than it used to be. Sometimes when we had big rains it would be pretty fresh, and the oysters would do better.

Q. Are there many clams found in your waters?

A. Not now; there used to be a good many.

Q. How long ago since you noticed the decrease?

A. There has been a decrease ten years back.

Q. What is the decrease in clams due to?

A. Catching so many.

Q. Do you think the demand for them has grown?

A. Yes. A few years ago there was no sale hardly and when the markets opened up and the people found it out they caught them all up.

Q. What suggestion would you make to us as to means by which the clam industry might be fostered and promoted?

A. I don't know.

Q. What would you think of a closed season as to when clams should not be caught?

A. They have a law to that effect now, I think.

Q. At what time is that closed season?

A. From April to November.

Q. Do you think that law is of any use?

A. Yes; it has done some good. If it had not there would not have been any there.

Q. Is not there something that you could suggest that the committee could recommend whereby this industry could be increased?

A. I don't know that there is, unless you stop them altogether for two or three years.

Q. Could not they catch enough fish to live on?

A. I don't know what part of the people would do for a living.

Q. Are the men engaged in clamming also engaged in other fishing?

A. Yes; they fish through the summer and fall. We don't have any fish in our sounds through the winter to amount to anything.

Q. The present law allows the fishermen to catch the clams at the only time they could catch them anyway?

A. Yes.

Q. Do you think that law does any good?

A. Yes; it helps.

Q. Would you recommend any closed season during which the fish could not be caught?

A. I don't know.

Q. What would you think of a proposition to place this county under a State jurisdiction so far as the enforcement is concerned?

A. I don't know.

Q. Do you think that if laws were provided that would be advantageous to this county, would it be enforced?

A. I don't suppose it would.

Q. Suppose a law were passed, could it be enforced better by a State officer or a county officer?

A. I don't see that it could be enforced any other way only by a State or county officer.

Q. Do you think it would be well to try what the State could do?

A. They have a law, or say they have it now, but it is not paid any attention to.

Q. Do you think it would be well to repeal the law?

A. I think it would be well enough to enforce the law or let everybody do what they please about fishing.

Q. You think the law ought to be enforced or else repealed?

A. Yes; I do.

Q. You think the law would be advantageous?

A. I do if you have 1 1-8 inch mesh.

MR. D. J. FERGUS.

Up to about two years ago there was not any inlet near Carolina Beach. We had twelve miles of inside waters from Masonboro Inlet up to the head of Greenville Sound, and I suppose the members of this committee have heard of the Masonboro oysters and of the fact of the head of the inlet being twelve miles from this sound, which made the oysters very fine. Almost as large as New River oysters, and they were of a very fine flavor. Two years ago this inlet broke in just this side of Carolina Beach, which caused the salt water to be close to them, and the oysters are nothing in comparison to what they were before this inlet broke through.

Q. Do you mean it has destroyed the oysters, or injured their quality so that they can not be sold?

A. It has injured the size of them and they have not the flavor they formerly had.

MR. HOLLIS.

Q. Don't you think that it would be a good plan to close the clam season all the year, except January and February?

A. I do not know.

Q. What price are you getting now?

A. Prices are low. Sold from \$1 to \$1.25 a bushel.

Q. How small clams do they catch?

A. They catch them pretty small. Some of them are not wider than a quarter.

Q. Is it a fact that these small clams bring a higher price than the large ones?

A. They do sometimes.

Q. Do you think that for the benefit of the clam industry it would be well to prohibit the catching of clams as small as that? Would it be better for the industry to prohibit the catching of clams that small?

A. I suppose it would, in a measure. It would be hard to regulate.

Q. Would they not be subject to inspection if there were officers for that purpose?

A. A short season, I think, would be the best for a few years.

Q. If they were permitted to catch them only six months during the year would not they catch small ones just as much then?

A. No one is going to get little clams if he can find large ones. They all do the best they can.

Q. Do you deal in clams?

A. I ship some clams.

Q. Do you get the small clams late or early in the season?

A. I think we get more later in the season than early.

Q. What season would you suggest for the open season for clam fishing?

A. January and February.

Q. And what months do you get the small ones?

A. In September we go to digging clams, and I find that we have larger clams then and smaller ones later in the season.

Q. You say later in the season. What months do you mean?

A. February and March.

Q. And your proposition is to allow them to catch them during January and February?

A. Yes.

Q. What do you think of this law that was passed during the past session of the Legislature (chapter 906, Acts of 1909, limiting the size of the fish that can be caught)? Do you think that is a wise law?

A. It looks like that is a small enough fish to catch.

Q. Don't you think that it would be to the interest of the fish industry that the law ought to be amended so as to prevent them from catching as small fish as are described in that law?

A. I do not see if they haul how they are going to keep from catching some little fish. When they throw them away they are wasted. The best way I see is to regulate the size of the mesh.

Q. Can't they release these fish without killing them?

A. No; there is no way to get them back without killing them.

Q. The only way you think in which that could be provided against is by increasing the size of the mesh?

A. Yes; even when you haul 1 1-8 inch mesh you are obliged to get some small fish.

Q. Do you know of any instance where they destroy a large number of these unsalable fish and either use them for fertilizer or sell them to the menhaden factories?

A. No.

MR. WM. AINSWORTH.

Q. How long have you been engaged in the fishing business?

A. About nine years.

Q. Where do you fish?

A. About twenty miles down the river.

Q. What kind of fish do you catch?

A. Mostly white shad.

Q. What has been your observation and experience? Has the supply of shad decreased?

A. They have decreased.

Q. To what extent?

A. Probably forty per cent.

Q. What is the cause of that decrease?

A. I think we fish too late when we fish on the spawning grounds up the river the last of April and first of May.

Q. Is there any limit prescribed in which they shall not fish?

A. There is, but they allow them to fish longer up the river in the spawning grounds than the law allows here.

Q. Where is the spawning ground?

A. Up where the river is small.

Q. Up by Fayetteville?

A. Between here and Fayetteville.

Q. At what time do you think the nets should be taken out of the river?

A. Not later than the tenth of April, and they should be stopped all the way up the river.

Q. Do you catch any herring here?

A. They catch some way up the river, but none down our way.

Q. From the information you have gathered, has the supply of herring decreased in proportion to the supply of shad?

A. I could not say. I am a stake net fisherman—stake gill net.

Q. Have the number of persons engaged in fishing decreased in the past ten years?

A. Yes; I think they have.

Q. To what extent?

A. I don't know.

Q. Do you think that the aggregate supply of fish is smaller or that owing to the fact that so many people are engaged in fishing that the catch of each individual is smaller?

A. They are not shipped.

Q. What length seine do you use in your waters?

A. We haul drift nets and stake nets.

Q. And the limit is 300 yards?

A. There is a law regulating the drift nets to 300 yards, but most of them are from 400 to 600 yards.

Q. Have you ever known any man indicted in this county for violation of the fish law?

A. Never heard of it.

Q. In your opinion would it be wise and to the interest of the fishing industry to have these waters put under the jurisdiction of the fish commission so that the law could be enforced?

A. No.

Q. What would you think of the establishment of a Bureau of Fisheries by the State and pass general laws for the State, and give the Board power to make rules and regulations applicable to each county?

A. Yes; there should be a law passed regulating the size of the mesh and put it in somebody's hands to enforce. I think that would come nearer to it than anything else.

Q. Do you fish for anything else beside shad?

A. Shad, eels, trout, mullets.

Q. Has the supply of rock and trout decreased in proportion to the shad?

A. Yes.

Q. To what do you ascribe the decrease?

A. Long seasons and small mesh nets.

Q. What remedy would you suggest?

A. Regulate the mesh in catching the mullets and smaller fish.

Q. What mesh would you recommend should be used?

A. Not smaller than 1 1-4 inch bar, and preferably 1 3-8 inch.

Q. Would you have that apply to both gill nets and seines?

A. They haul some seines on the outside beach that are 1 1-4 inch. They use 1 1-8 inch mostly now, but 1 1-4 inch would be better. The price of the fish caught in them is less; they decrease the fish by catching the smaller ones, and it takes so many more of them to make a pound. If allowed to stay in the water longer the same number of fish would weigh a great deal more.

Q. Do the fishermen get different prices for the size of the fish, or do you sell them by the pound?

A. Sell them by the bunch. There are supposed to be three pounds on the bunch, but the smaller the fish the less the bunch weighs.

Q. Are there pound nets used on the Cape Fear River?

A. A few; not many now.

Q. In what part of the Cape Fear were they used?

A. Right down close by me.

Q. Is that down near Horse Shoe shoal?

A. At Peter's Point, down there.

Q. How far out on the river do these pound nets extend?

A. Some of them half a mile out; some a mile.

Q. You say it is unlawful to use that net now?

A. I think they have cut them out and the stake nets too, at the last Legislature.

Q. How many pound nets were used there last year?

A. I think there were two.

Q. You mean two stands or two pounds?

A. I mean two nets.

Q. Do you think the use of these pound nets had any effect on the fish?

A. They kill up a lot of small fish. The fish get in there and they bale them out and a lot die.

Q. What was the size of the mesh in these pound nets?

A. About an inch bar or 1 1-8 mesh.

Q. Was that in the pocket of the net?

A. Yes.

Q. Do you use these nets fishing at any time yourself?

A. No.

Q. What proportion of small fish were killed because they were not salable?

A. I can not answer that.

Q. Is there a man here who is fishing these nets?

A. Mr. Henneker. I would like a law which allowed us to fish the stake nets with the proper regulations, and the drift nets be kept a certain length of the channel. If over 300 yards they drift into the stake nets.

Q. What length would you suggest would be proper for these nets?

A. The present law of 300 yards is all right, if enforced.

Q. You say that law is not enforced?

A. Nobody to enforce it. If you would just give all hands a show with the proper regulations, I think it would be a good thing.

Q. Did you say that you approved of the fishing of pound nets in the Cape Fear?

A. I disapprove of it.

Q. How many fish do they catch, as compared with the other fishermen?

A. They catch mostly cat fish in this river and a few trout.

Q. Do they catch any shad?

A. No; only a very few. They are not in the shad grounds.

Q. Have you any regulations as to how far out in the channel you can fish drift nets?

A. No; they can not fish only where there is plenty of water. They have to be in the channel where they will drift. The drift nets are fished in the channel, while the stake nets come out a certain distance from the shore.

Q. You can fish drift nets a certain distance from the shore?

A. Yes; you can until this law that is passed goes into effect.

Q. Do you ever have any trouble with eels destroying the shad?

A. Some. That comes along in April, when the water gets warm.

Q. What per cent of the shad do you have destroyed?

A. A mighty small per cent. In catching a thousand shad you might lose, say ten, and that only in April. Take out the nets the first of April and you would lose none.

Q. Do you catch any sturgeon in these waters?

A. Never fished for sturgeon. Some are caught, however.

Q. Are there any parties engaged exclusively in sturgeon fishing?

A. I don't think there are any engaged specially in it. When the shad season closes they take up the sturgeon.

Q. How early do you begin to catch shad? How late?

A. About the first of February and until the twentieth of April.

Q. Between February 1st and April 20th, what other kind of fish do you catch?

A. Rock, and a few cat.

Q. To what extent would the shad fishing be benefited to prohibit the fishing of nets of all kinds in the middle of the river, of one-sixth of the width of the river and to keep a channel down the middle of the river?

A. You can not fish a drift net any other way except in the channel. Such a law would practically kill the shad industry. You have to throw these nets out and if the tide sets across them they have to be taken up and thrown out again farther up the river.

Q. What is the shallowest water in which you can fish a drift net in the river?

A. I think they fish in 40 or 45 meshes deep.

Q. How many feet is that?

A. Twenty or twenty-five feet of water. Possibly eighteen. The farther down they get they make the meshes deeper.

Q. Is there a law in Brunswick County regarding stake and pound nets?

A. I think there is a law prohibiting the use of them on that side of the river. They have only been allowed on this side of the channel.

Q. Isn't Wednesday a lay day for fishing in the river?

A. It has been, but that law has never been enforced.

Q. Do you fish seven days in the week?

A. Yes; eight if there were an extra day. When you put the stake nets out you have to fish them on Sunday, or else lose the fish entirely. You can haul in a drift net when the tide runs out to the end of the reach and it is taken out, but you can not take out the stake nets.

Q. Do you think there ought to be any lay day?

A. If the regulation was right it would not do any good.

Q. Is not Sunday a lay day anywhere?

A. Nobody fishes except the ones that have stake nets out.

Q. Do you think the shad industry would be benefited if the United States Government would put 5,000,000 young fry in the river every year?

A. It would if they were protected and not allowed to be caught up as they are going out and allowed to come up and spawn again.

Q. Do they catch any on the down run?

A. No; I think they most all die in the river.

Q. You think they die in the river? What makes you think that?

A. I never see them go out.

Q. Would you recommend a hatchery on the Northeast River?

A. Yes; that would be a good thing.

Q. Where are the fish marketed that are caught in these waters?

A. All in the northern markets, Philadelphia, New York, etc.

Q. Can you give us an estimate of the value of fish that are caught in these waters?

A. I can not.

Q. Any other suggestions you can make to us?

A. Outside the regulation of the mesh of the nets, gill nets, etc., I don't know of anything else.

Q. You are not interested in the oyster business?

A. No; I am not. I have been in other parts of the country, and I think if an oyster garden law was properly regulated it would fix that all right.

Q. You mean the law properly framed or enforced?

A. Properly framed and properly enforced.

MR. W. H. YOPP.

I would like to make a statement in the outset that I am not a practical fisherman. All the fish I ever caught were with a silver hook. I buy and ship them. I have been engaged in the packing and shipping business twenty-five years next November. I handle shad from up the river and used to handle sturgeon when we had them. We have caught more this year than we have perhaps in the last eight or ten years. I handle salt water fish of all descriptions.

Q. Where do you ship your fish?

A. I ship to points in North Carolina, South Carolina, Richmond, Norfolk, Washington, Baltimore, Philadelphia, and New York.

Q. Can you give us an approximate value of the fish and oysters shipped from these waters?

A. I could not do it off-hand. I have had occasion to give to the

United States representatives who come down here every year figures regarding this. I keep a book specially printed for that purpose. I could approximate it by saying there are five shippers here and I presume the five shippers together would handle at least 300,000 bunches of fish caught out of the salt water. Then the hucksters here in the city probably handle twice as many as we do. I should say there are a million bunches of fish brought to this market in the year.

Q. What would be their value?

A. At eight cents per bunch, for 400,000 bunches. The packers, I presume, handle 400,000 and the retailers 600,000. Some seasons of the year they are cheaper than others. These are the salt water fish taken from the ocean. There are very few fish caught in the Cape Fear River. Shad and catfish are the ones caught in this river.

Q. How did your business the past year compare with your business for two or three years prior?

A. For the past two or three years the catch of fish on the sounds has been smaller than it was prior to this. Some attribute it to the weather, wind, etc.; I do not think there are as many fish caught on the coast as there were fifteen or twenty years ago, while there are more people fishing.

Q. To what do you attribute that?

A. It is on account of so many people being engaged in fishing. It is calculated to frighten the fish. I have heard this argument produced.

Q. Have you heard that the motor boats run the fish away?

A. I have never heard that suggested; in fact they don't use them for fishing purposes around our sound.

Q. They are used a good deal for other purposes?

A. Used in the river, but very few in the sound.

Q. You think it has no effect on the fishing industry? We have had that idea advanced to the committee.

A. So far as my knowledge goes, I would say no.

Q. Speaking of shipping, do you supply the markets of Charlotte, Winston, Greensboro, etc., in that part of the State?

A. I have very little trade in that section. Have made some shipments to Greensboro and Salisbury, but as a general thing I seldom get an order from that section.

Q. From what markets are these supplied?

A. They are supplied from Morehead, Norfolk, and Charleston.

Q. Is there any difference in the rates from these points and from Norfolk and Charleston?

A. I think we have a cheaper rate than Norfolk.

Q. How much cheaper?

A. Some twenty-five cents or fifty cents per box cheaper.

Q. How is it at Salisbury and Greensboro?

A. I think it is about the same.

Q. What would you suggest as the best means of promoting the fish industry in this section?

A. If you speak of the fish caught in salt water I would be compelled to say I am entirely at sea. I have heard fishermen say that the small meshes destroy the fish, but more of them argue that our waters being shallow, and the fish being migratory, they don't stop in our waters. Take Moore's Inlet and Masonboro Inlet, where the waters are shallow; they come in and pass out. During the winter months there are no fish to be caught around here, and in consequence they use the smaller seines and catch the smaller fish. Down in Pender and Onslow counties the water is deeper and the fish are there possibly the year round. They come and pass out. I am not just exactly prepared to say in regard to the size of the mesh as to whether it should be regulated as this gentleman who preceded me suggested or not, and I feel that I would prefer fishermen to pass on that question themselves.

Q. What suggestion could you make to us as to shad fishing in the Cape Fear?

A. I have been furnishing men with fishing tackle for five years to catch shad in the river, and my observation has been that ever since they began to use the stake nets in the river, which I think was about nine years ago, the shad have decreased. I had occasion to write the Fish Commissioner, Mr. Bowers, from time to time to get him to plant shad in this river, and during the session of the last Legislature I got up a bill and had it introduced by Colonel Morton and Mr. Empie to break up the fishing of the stake nets. These stake nets are placed near the inlets, and as I understand it, some are just abreast of Moore Inlet at a place called * * *. I asked Mr. Bowers if he thought they had a tendency to lessen our catch here, and he replied, "Undoubtedly they did, and should not be permitted." I sent that letter to Colonel Morton at the Legislature. A law was then passed to take out the stake nets and drift nets at the mouth of the river. I wrote Mr. Bowers for some more fry, and he replied that we would get no fry until we protected our own fishing industry. I sent that to Mr. Gordon, our Representative, and asked him to tell Mr. Bowers that the last Legislature had ordered these nets taken out of the river.

Q. What proportion of the shad that you had in the last five years were caught in the nets that you speak of?

A. Speaking for myself, I only had one row, and that was not a long one. They tell me in a good season, when the fish are running well, that they outcatch the drift net by two to one, and that great quantities of the fish caught never benefit the fishermen or any one else. The nets,

as I understand it, are put in the water at the beginning of the season and are never taken out, always fishing, every day and Sunday, too. As to the drift nets, we have no law about that, but they usually quit fishing down the river every Saturday morning and go back some time Monday.

Q. In what way do these nets injure the shad?

A. I have read if you take any stream of water in which the shad come up and put a dam or barrier across that river, they would come up for several years, and finding this barrier they would finally abandon coming up there altogether. I imagine that the stake nets down there operate somewhat as a barrier, because while the length of the shad nets have been operated in violation to the law, I understand that the fishing of those stake nets have been in constant violation of the law. Instead of keeping off within half a mile of each other they go closer and closer, and therefore I imagine they act as a barrier, keeping the shad from passing up the river. I have based my conclusions on the fact that the shad have been constantly decreasing, according to my books, since the nets began to be fished, about nine years ago. This past season, however, we have had an increase of about one-third over the previous year.

Q. Don't they set nets very thick in Albemarle Sound?

A. Yes; but they have more water.

Q. What proportion of the fish that you purchase come from the Cape Fear above Wilmington?

A. I should say that I have had perhaps 18 per cent of the entire catch from above Wilmington.

Q. What kind of nets are you fishing up there?

A. Drift nets.

Q. You think that is equal to that of other gentlemen engaged in the business?

A. I think so. I think the nets that I had there were about as well fished as those of any others.

Q. Over what proportion of the river do these nets extend?

A. The river is about 200 yards wide and a net would cover about 140 yards. A drift net covers the middle of the river, and only a small boat can get by on each side. They fish a net as long as they can, regardless of navigation.

Q. Are there nets that extend all the way across the river, just to allow a sufficient width for boats to go around?

A. Yes; I think so. I don't think the drift nets down below ought to be over 300 yards long.

Q. What is the length they use?

A. I would not be surprised if they don't fish them from 350 to 400 yards; some of them possibly 600.

Q. Don't you think that the fishing of nets up the river has as much to do with the decrease of shad as the fishing of nets down the river?

A. They don't catch as much. The percentage is small.

Q. What is the closest stake net to the mouth of the river?

A. Nine miles, I suppose.

Q. How many hours a day are these drift nets fished in the waters up above the city?

A. (*Mr. Fail answers.*) A feller can go out all day if he wants to. I would say maybe six to nine hours out of the twenty-four, on an average. In windy weather they can not fish at night, and they only go out at night according to the tide. The current is very strong up the river most of the time.

Mr. Yopp:—There are perhaps 300 fishermen on the river catching shad, and from the information I could get there are not exceeding a dozen who favor the fishing of the stake nets in the river. Two hundred and eighty-eight wanted them removed.

Q. How many of that 288 fished stake nets?

A. I do not know.

Q. Half of them?

A. I don't suppose over twenty-five fished stake nets. I think there were about twenty-five, all told.

Q. In a net 100 yards long, do you catch more fish in a stake net or a gill net?

A. If the fish are running you would catch more in the stake net, and if not running you would not catch any. As the weather gets warmer they go on the eastern shore.

Q. Where is the spawning ground in the Cape Fear for the shad?

A. I presume they are above Black River. I should say perhaps twenty or twenty-five miles from here, or beyond that in the various rivers and tributaries.

Q. You mean that they all go up there?

A. Generally speaking.

Q. Do you find as ready a sale in market for the small as you do for the large fish?

A. No; I don't.

Q. If it were a misdemeanor for a dealer or a fisherman to have a small fish in his possession would it not help the industry?

A. Yes.

Q. Are there many fishermen in New Hanover County who devote their entire time to fishing, and do not do any farming?

A. I don't think any of them devote themselves entirely to fishing.

As I stated a while ago, we don't begin to get the fish down here that you get farther east in North Carolina. Some of these men outside of the clams they catch during the winter, are dependent entirely on the small fish for their livelihood.

Q. Do you think that such a law would work any more hardship on a community where the fishermen earn part of their livelihood from farming than on a place where they devote their entire time to fishing?

A. The fishermen have not really got farms. They have a few garden spots. Some few of them make some lettuce during the season, and some potatoes and peanuts, but their living is mainly fishing and clamming. There are so many days during the fishing season that they are prevented from fishing on our coast, owing to the northeast winds, and the fish go by and then can not get them at all. I have known it to be the case for a period of ten days they would not get any at all, when the fish were passing by in great quantities.

Q. Do you get many fish from the Northeast River?

A. We don't fish up there a great deal. A few shad nets are fished up the Northeast River; I suppose not exceeding dalf a dozen.

Q. How is it with Black River?

A. I don't think we get any fish up in Black River.

Q. Is there anything else that occurs to you that would be of interest to the committee to assist us in arriving at a conclusion?

A. Nothing that I can think of. I am mainly interested in getting stake nets removed from the river, believing they damage our catch of shad.

Q. What about the shrimp business?

A. I handle only a few shrimp. Very few caught this season.

Q. You think there ought to be any regulation in regard to catching shrimp?

A. I should judge so. I rather agree with some of the gentlemen who have spoken that the seines are entirely too long and too deep. I have understood from time to time that great quantities of small fish are caught every day and do no one any good at all.

Q. Don't you think that it would be the best thing for North Carolina to have a Bureau of Fisheries, with power to regulate things of that kind, and make rules and regulations suitable for each county and have a general law for the whole State?

A. I have no doubt it would.

MR. FAIL.

The Northeast River is the most important thing I can think of for a hatchery.

Q. Why do you select the Northeast River?

A. This river is better adapted with its clear, beautiful water and no currents.

Q. Do they catch any spawning shad in these waters?

A. Yes.

Q. What do you mean by spawning shad?

A. Those ready for use in hatcheries.

Q. Do you get them in any numbers?

A. We could by having more nets up there.

Q. In what part of the Northeast River does the shad spawn?

A. All the way up. I would say from the mouth of the river to the mountains.

Q. Is there fishing all along?

A. No; there are some reaches that nets can not fish in—a great many like that.

Q. Would it be possible to open up that river free of all fishing and have a hatchery?

A. That would not work any hardship. With the hatchery up there the more fishermen the better.

Q. It would work no hardship on the men further down the stream?

A. No.

Q. Do you think the fishermen would be willing to have a closed season beginning the middle of April, during which they could catch no shad?

A. We have a law for a close season now, beginning April 15.

Q. Is that law enforced?

A. No.

Q. How far up does that prohibition extend? Does it include the entire length of the river?

A. It just includes this county, I suppose. It permits the use of drift nets up to the first of May.

Q. Would the fishermen object to having that closed season advanced to the middle of April?

A. I think that meets with the approval of the fishermen up to the first of May. If we could have all the fishing stopped up the river we might agree to the middle of April. About the first of April they take out and stop. Give the fishermen to the first of May up the river and they would have some fishing, too.

Q. You say that that regulation should be extended up that river through the several counties through which the river passes. Do you think it would be a good thing to have restriction all the way?

A. The first of May, I would think so.

Q. Would you have that in the hands of the State rather than the hands of the county?

A. Yes, have all regulations regarding fishing in the hands of the State rather than the county.

Q. Don't you think it would be a good thing to have shad nets taken out by the first of April, in order to promote the industry?

A. That would not give the lower fishermen time to catch any shad at all.

Q. Don't the fish pass here before the first of April?

A. It is about April before the nets up the river catch anything to amount to anything.

Q. You believe there ought to be a later time for the upper part of the river than for the lower part of the river?

A. No; the people down the river will knock off voluntarily.

Q. In order to replenish the shad, don't you think that we ought to submit to a temporary inconvenience? Don't you think it would be better?

A. I think the way to keep the catch up is to have a hatchery up the river.

Q. Do you catch sturgeon?

A. Yes.

Q. How many sturgeon have been caught in these waters this season?

A. Possibly seventy-five.

Q. There has been a very perceptible decrease of sturgeon in the past five years?

A. Yes.

Q. Do you think that is due to being caught up so plentifully?

A. I think it is due to their catching in the shad nets the little sturgeon.

Q. The shad nets you refer to; are they the menhaden?

A. The drift nets down the river. The little sturgeon do not seem to go up the river.

Q. Would it be possible to put these sturgeon back in the river before they were killed?

A. Yes; I have taken out as many as ten or fifteen.

Q. Is that small fish you catch sturgeon?

A. That is the question. I have always contended that these pegginails, as we call them, are not sturgeon, but are something like a sturgeon. You catch one small sturgeon to probably a thousand of these pegginails. Why, one of those pegginails never grow no larger and never do get to be a big sturgeon. I know, because I've watched them.

Q. What do you think about mullets?

A. I have been paying six to eight cents for 1 1-8 inch mullets which means five or six on a bunch.

Q. What is the length of these?

A. A 1 1-8 inch mullet is about six to eight inches long. We have been paying eight cents for these, even before they were caught. I think Mr. Yopp has some fish in his house that he paid three cents a bunch for, and was sorry to take them at that. Still he is willing to pay eight cents for 1 1-8 inch mullets.

Q. Where are these small mullets shipped to?

A. While 1 1-8 inch mullet is worth eight cents on our market, wholesale, that class of mullets, with twelve or fourteen on a bunch, are worth only three cents at other places. We are catching that kind of fish with these little inch or 3-4 inch bar seines. I think we ought not to have anything under 1 1-8 inch bar.

Q. What kind of law would you suggest to prevent the catching of these little fish?

A. I don't know as that is necessary. You can go out with 1 1-8 inch mesh seine and catch the small fish.

Q. If he can sell these mullets is not that an inducement to catch them? Suppose you, yourself, were subject to arrest for having these in your possession, would you buy them?

A. I might take chances. I would measure every man's fish before I bought them.

Q. You think that it would be to the benefit of the industry to have some regulation in regard to it?

A. In the mesh that the fish is caught with—yes. There will be time in the winter when he will catch a big haul of small mullets with a 1 1-8 inch seine. He can not do it in hot weather.

Q. Do they die as rapidly in cold weather as they do in hot?

A. No; in the cold weather they go in the streams as thick as can be.

Q. Those that are not marketable—what do they do with them?

A. There is no chance of putting them back at any time. Whatever a 1 1-8 inch seine will catch they will have to pull out. They compost some and throw some away.

Q. Do you think it would be a good plan to have a law to make it a misdemeanor to use an edible fish for fertilizer?

A. No; if he is caught, I think he ought to be utilized for something.

Q. Are there many black bass caught in the streams around here?

A. Very few.

Q. Where do they go there—up Black River and Northeast River?

A. The rivers. We don't have many in the sounds. Between here and the mouth of the river.

Q. How about the trout?

A. We have not had very much catch of trout. It has been decreasing. I would suggest that there be a Fish Commission appointed to look out for this whole State and have a deputy Commissioner in every

county to strictly enforce the laws. He can watch out for the man who catches the little fish.

MR. SHEPERD.

In regard to the clam question, I think the law we have is favorable and that nine-tenths of the people who live on the sound would endorse it. We can catch clams from the first of November to the first of April, which gives us four months. My experience is that you catch more small clams after Christmas than before Christmas, and I would suggest something like they have in New York. I would suggest to have a good law for New Hanover and Pender counties whereby you could not catch a clam less than 1 1-8 inch. A clam is something that can be assorted. If you leave it on the rock or shell of course it burrows and goes in the ground, same as before. I have bought clams from catchers that were barely larger than your thumb nail. Of course a barrel of them, if left in the waters for as long as two years, one barrel would make ten. Therefore, I think the real small clam less than 1 1-8 inch should be left in the water, and it is against the clam industry for us to use them. I think the regulations we have now are about as good as can be, if enforced.

Q. Are the regulations in regard to the clam industry observed?

A. Yes; pretty much. I have heard a little talk of some buying clams and putting them down before the season is out. I am not aware of any particular person. I don't know but I would suggest that if we were to have a Commissioner for the county that he be instructed to see that that law was carried out for the clams as much so as the fish. In regard to the shrimp, it is the same thing. Shrimp seines do more damage to the fishing industry in our waters than any one thing we have. I have no plans or ideas to suggest in that respect, only in the shortening of the seines and have them inspected because some people take advantage of shrimp seines to catch small fish.

Q. What do they do with these small fish that are not marketable?

A. Compost them, generally.

Q. Do you think that the clam could be best regulated by prescribing that they shall not have them under 1 1-8 inch in length?

A. I think the way the law is now, the majority of the people would endorse.

Q. Do you think it would be any advantage to have a closed season from the first of March to the first of November?

A. I don't think so. The best thing to be done is to prohibit the catch of real small clams.

Q. Do you think it would be an advantage to have a Board of Fisheries similar to the Board of Agriculture, with power to make rules and

regulations suitable for each county, and have a Commissioner and Deputy Commissioners to enforce the law?

A. I think there should be a commission to enforce the State law, giving that department power to regulate these matters.

Q. Is there anything else that you would like to suggest to the committee?

A. Nothing that I know of.

CAPT. D. J. FERGUS.

I have thought of a few suggestions that I would offer this Honorable Committee. Regarding the law for regulating fish, it has been suggested that there be measures as to the length of the fish. I have been in the business thirty years. The last two years I have been in Wilmington shipping. I have been called out of my bed all hours of the night by the fishermen who had made a big haul and it was necessary for me to come down to save the fish. Such a law regulating the size of fish would mean a total loss to the fishermen. The only way to regulate the fishing is to regulate the size of the mesh. The waters of New Hanover County and Pender differ from any in the State of North Carolina for the simple reason that we have one river in this county and no river in Pender. The Cape Fear opens directly into the ocean. There is no sound like the New and Neuse rivers run into, and the other rivers to the northeast. In addition to that the sound waters of New Hanover and Pender counties are in comparison to the waters of Pamlico and those other large sounds, as a little pond to an inland sea. They contain deep waters where fish permanently stay and inhabit. I have had thirty years experience in the waters of New Hanover County. The waters are shallow and the large fish do not stay in them, and if the fishermen are not allowed to catch the size of fish that inhabit these waters they are simply out of business. A good many of the fishermen of New Hanover County have only one or two acres of land and are dependent upon the fishing of the river and ocean for their living. If the size of the mesh is increased above 1 1-8 inches that puts the fishermen of New Hanover County out of business. Every fall there are any quantity of large mullets that pass this coast, but they run so far out they can not be caught. Last fall when we considered the fishing season almost a failure, there were thousands and thousands of bunches physically out of reach of the seines. The fishing season in this county is regulated by the winds. If the wind is favorable they will come in by one tide and back out by the next. The bays along the sound hardly average over three feet depth of water, and I have watched the bunch fish come in Masonboro Inlet and turn around and go out. If they get to Masonboro Bay a few will break off and go up, and sometimes go

on up the other bays. If that bunch of fish is struck in Masonboro channel they immediately turn and go back to sea. I would not ask an unjust thing for the fishermen of New Hanover County, but they are people worthy of consideration, and I make this statement that you could not make a universal State law that would apply to the entire State without detriment to the fishermen of New Hanover and Pender counties.

Q. Don't you think the State of North Carolina ought to pass general laws with the idea of promoting the industry and give that Board power to regulate the laws in the different counties?

A. The fishermen of New Hanover County are already taxed enough, and if you have a Fish Commissioner of New Hanover County, he has to be paid, and I would suggest in lieu of that that it be made a misdemeanor, punishable by a fine of from \$50 to \$100 to fish a bar under 1 1-8 inch, one-half to go to the informer and the other one-half to the educational fund. Then that would make the violator of that law be punished for violating it and it would not punish a poor fisherman who is innocent.

Q. Did you ever hear of a man in New Hanover County being indicted for violating the fish law?

A. Not that I know of. I think to compare them with other sections, they are the most law-abiding fishermen in the State.

Q. How long have you been engaged in fishing?

A. Thirty years.

Q. And in that time you have never known of a man indicted for fishing?

A. No.

Q. In what way would the other fishermen regard a brother fisherman who informed on them?

A. It would not be necessary for a fisherman to inform on another. These magistrates are very eager for cases.

Q. In what part of New Hanover County are you engaged in fishing?

A. At Masonboro. Regarding shad; I think the suggestion made by Mr. Fail is one of the most practical I have heard. The proper place to protect the shad is on their spawning ground. If you protect him down here, what is the use if you let them go on up the river using their seines and catching them on their spawning grounds?

Q. Why do they quit down here the first of April?

A. For the reason the fish packers encourage them to.

Q. Don't you think those men up the stream are entitled to a little consideration?

A. Possibly, for in Pender County they catch more in April than in any other month. If you would make it a universal State law to pro-

hibit the catching of them after the first of May, you would save the shad.

Q. What proportion of the fish that you buy come from above Wilmington?

A. I have not any nets up there. The dealers furnish the nets and the men turn over the fish they catch to the dealers.

Q. Do you buy any other kind of fish than shad from above Wilmington?

A. No.

CAPTAIN BUSSEY

I am a purse net fisherman. I am not interested in the food fish, only to the extent that I think it ought to be a violation of the law to catch food fish for fertilizer purposes.

Q. How long have you been engaged in purse net fishing?

A. Thirty years.

Q. On what part of the coast?

A. From Maine to North Carolina.

Q. Will you explain what kind of net a purse net is?

A. It is similar to a tobacco pouch with the bottom out. It is a net that encircles the fish with a puckering string in the bottom.

Q. How long a seine do you use on this coast?

A. About 130 fathoms.

Q. And how deep is it?

A. About sixty feet deep.

Q. In what depth of water can you fish that net?

A. Any depth deeper than sixty feet.

Q. You can fish it in any place, under any circumstances, closer to the shore than that?

A. We don't aim to fish inside of sixty feet depth for this reason: These nets are long and heavy, and on the bottom most anywhere there are snags. Now these nets are very expensive, many of them costing as much as \$1,000 apiece. If they run against a snag in being fished too close to the bottom they are liable to tear them up and thus it is not to our advantage to fish in any shallower water than sixty feet.

Q. It would be very difficult to purse it up in any event?

A. Yes.

Q. Will you tell us what kind of fish you catch in that net?

A. Menhaden or fatbacks.

Q. Do you ever catch any other fish?

A. Very seldom.

Q. Do you ever mistake a school of some other fish, as mackerel, for menhaden?

A. Mackerel don't school on this coast. On the coast of Florida they use purse nets to catch mackerel, where they do school.

Q. Do you ever catch, mixed with the school of menhaden, other schools of fish?

A. Sometimes, but very seldom.

Q. What kinds?

A. We sometimes catch a bluefish, a gray trout, a shark, or such fish as feed on other fish.

Q. Do you catch many of them?

A. No.

Q. Have you ever known a fatback purse seine to catch them?

A. I have known them to catch them for market purposes.

Q. What disposal do they make of them when they catch them?

A. They always turn them out, so far as I know.

Q. Have you ever known them to use food fish for fertilizer?

A. No.

Q. Is there any reason to use them?

A. I should think not, when they are worth five times as much to market.

Q. If they caught them and brought them in, they would sell them on the market?

A. Certainly.

Q. Why do they use only the fatback for fertilizer purposes?

A. Because the fatback has more oil than any other fish, and oil is the quality desired. We are now buying for our crew the mullets that these gentlemen are catching to feed our men on, and paying eight or ten cents a bunch for them. We have in our provision bill salt fish and have no fish that we catch ourselves. I believe in the Chesapeake Bay we did not average one mess of fish for the crew aboard the boat a week. The United States Fish Commission, I think, when Dr. Collins was at the head of it, put men on the different menhaden boats from Maine to Virginia and kept them there the three principal months in the fishing season and the percentage was so small that the United States government gave it up. Now the different States have taken it up, and the State of Virginia has just passed on it.

Q. How long have you been fishing off the coast of North Carolina?

A. Seven or eight seasons.

Q. Can you tell us what the shipment amounts to in this factory here?

A. Two thousand tons of scrap.

Q. Do you buy any fish from any of the fishermen?

A. No.

Q. What would you suggest as to what laws we could pass to protect the fishing in this State?

A. Adopt the same as all other States have or are trying to do at this time, that is, regulate the mesh. That seems to be the only way.

Q. What size would you say would be applicable to these waters?

A. That would have to be left to the fishermen.

Q. Could you give us any suggestions about protecting oysters and clams?

A. I was listening at the gentleman in reference to small clams. I don't think that has as much to do with the scarcity of clams as the season to prohibit catching clams. I don't think any fish should be allowed to be caught at different seasons.

Q. You think there ought to be a closed season?

A. Yes.

Q. Can you suggest what would be a proper season?

A. No spawn should be allowed to be sold. If the State could pass a law prohibiting the taking of spawn shad from the water at the season in which they spawn, I believe it would do a great deal towards building up the shad industry.

Q. How could you regulate that?

A. The United States government can do it by establishing hatcheries and have a law that all spawn fish are to go through that hatchery. So far as my company is concerned we are willing to have a law for the confiscation of property and imprisonment if we catch edible fish.

Q. Do you think it would be advisable to have a closed season in which no fish should be caught?

A. That would work a hardship on the citizens. Catching the small fish does not amount to half as much as destroying the spawn.

Q. Do you think that these nets used in the Cape Fear should be taken out at an earlier date than is now prescribed by law?

A. No. Fish that migrate are to be caught by the citizens of any section where they can catch them. I don't see how you can pass a law for John Smith not to catch a fish at the mouth of the river and let Peter Jones up the river catch it.

MR. J. H. HOLMES.

I don't think we could fix a law to suit all men who eat shad out of Cape Fear River and up as far as shad go. Sometimes the latter part of May the people up in the little streams by Fayetteville begin to catch the shad. There is only one way to help us with the shad business here, and that is to quit for two or three years at the time—everybody. That makes the fishermen and the shipper and the eater do without shad and all fare alike. As far as the sturgeon is concerned I think it would be a good idea not to fish for the sturgeon for a certain length of time.

Q. Are there many people about here engaged in sturgeon fishing?

A. No.

Q. How many of these cow sturgeon have been caught this season?

A. I don't suppose there has been over fifteen that had sixty pounds of roe. There may be a lot of cow sturgeon caught that don't have this large roe.

Q. What proportion of the shad that you buy come from up the river? Your fish come from the nets that you employ men to fish?

A. Yes, sir.

RESOLUTIONS.

It was moved that a vote of thanks be given to Colonel Morton for his elegant reception to the committee.

A resolution of thanks to Mr. Morrison Divine for his generous offer to place at the disposal of the committee his boat, for use in making a trip to Southport and back, was introduced and carried.

SOUTHPORT MEETING.

JULY 24, 1909.

Meeting called to order and explained by Chairman.

Mr. C. Ed. Taylor was called upon to designate such men as in his opinion could give practical ideas regarding the fishing interests in that section.

MR. JOHN HOLDEN.

I have had experience in fishing for mullets. It is the only fishing business that I have much experience in and I only have my experience in the small rivers such as Lockwood's Folly, which is down the coast here about twelve miles. I have been following that business for about thirty or thirty-five years. My experience in the mullet fishing is that while we have been successful in catching a great many mullets we have been more or less molested and injured by gill nets in and around our inlets, Lockwood's Folly, etc. Our river is a narrow one, and while the mullets run this coast, always going westward, we have no mullets going eastward in that season of the year, which is about four months. While the mullets are running up the coast more or less of them are running in small quantities. They go in at our small inlets and into our deeper waters, where they locate. When they go in there they are bunched to a great extent, and they are molested by gill nets around the inlets, which break up, scatter, and run those fish off. Around these inlets the men are in squads of from twenty to twenty-five in a stand. These gill nets do not make much success close around the inlets for the reason that there is a great deal of tide water and gill nets, in

the daytime especially, do not have much success in catching mullets. Also they do not have much success at night in catching the mullets. While these crowds of men are located there for weeks, when the mullets do gather up close around the mouths of the inlets and those gill nets get in their day and night scatteration, and while they don't catch any to amount to anything they drive them out.

Q. Do you mean they drive them back and don't let them run out?

A. No; they run them out in a scattering way.

Q. What kind of nets do you use?

A. We use different kinds. I don't use gill nets myself. I use haul seines.

Q. What mesh?

A. One and one-eighth bar.

Q. What length?

A. I use two seines, one about 230 yards and another about 400 yards.

Q. Do you use these altogether?

A. We use the bigger seine for fish that run wider off and the smaller seines for fish running closer to the beach.

Q. Is there any law in this county prescribing the length of the seine or the size of the mesh?

A. Not that I know, but I have understood there is a law in regard to the size of the mesh. No law as I ever heard of regarding the length of seine.

Q. What is your opinion as to the proper size of the mesh?

A. My opinion is that there should be no net fished less than 1 1-8 mesh.

Q. Do the gill net fishermen obey the law in regard to the size of the net?

A. I could not say. I have not seen any gill nets fished under 1 1-8 inch.

Q. Do you fishermen tar your nets?

A. No.

Q. Do any of them down that way tar their nets?

A. I think not.

Q. How is the supply of fish. Is there any perceptible decrease in the past few years?

A. There has been for three years.

Q. What per cent would you say that decrease amounts to?

A. For the last three years I think it has been a decrease of from one-half to two-thirds.

Q. To what do you ascribe that decrease?

A. I think that there are different reasons.

Q. You speak of the mullet fishing alone?

A. Yes; I am speaking of the mullet interests alone. My judgment is that for the past two falls we have had a good deal of storms and windy weather. Last fall we had floods and rain in this section, and farther down my understanding is that that had something to do with carrying the mullets to sea. Another reason is generally thought by the people is that the poggy or fatback fishing is more or less injurious to the mullet fishing on this coast.

Q. In what way is it injurious?

A. Through and by the slime. When the slime is pumped from the boats in which they have the fatbacks it has been seen that it makes the other fish turn back, and I have heard it said by some that it was believed or thought it was one cause for the fish not locating or settling or remaining in Cape Fear River as heretofore was on account of the scent from the factory.

Mr. Taylor:—There is a law in this county prohibiting the menhaden men from pumping the bloody water or slime out amongst the fisheries.

Q. How long have the menhaden fisheries been carried on here?

A. Perhaps six or eight years.

Q. What is your idea about whether that law has been enforced? Have the fish factory men observed that law?

A. According to my understanding, they have not.

Q. Have you any knowledge of your own that they have not?

A. No; I do not know.

Q. To your knowledge have they pumped the water from their fish banks on the surface of the sea?

Wash Holden:—I could not say directly, but reports say they do. The fact is I am not acquainted well enough with the steamers to know when they are pumping and when not.

Q. Has anybody ever been indicted in this county for violation of the fish law?

A. I have understood so.

Q. Was he convicted?

A. Two years.

Q. What was he charged with?

A. Purse-seining within the prohibited limits. In regard to the law being observed within the distance the law requires in pumping out the slime, it is the hardest matter in the world for any one to stand on the shore and tell what distance she is from the shore.

Q. We understand that there is no special complaint from the mullet fishermen on that score?

A. Not that I have ever heard of on my shores.

Q. Is there anything that you could suggest to the committee that

would improve your fishing in any way so as to promote the fishing industry?

A. I hardly know what to say, for the reason I don't want to say anything that will conflict with anybody or will give anybody a reason to believe that I want to monopolize or take any action against the masses of the people as a whole. My opinion might be different from somebody else's in regard to the fishing business.

Q. You have advanced the idea that your fisheries are bothered some because the gill net fishermen disturb the fish when they get in. Please explain yourself on that.

A. Our rivers are narrow about the inlets. My best understanding and experience is that there has never been any successful fishing done with gill nets on and around these inlets, while we have been seriously damaged by the gill nets inside and outside of the channel, and also just on the inside of the beach, where the mullets would gather and go out where we could get them. At the same time, these gill nets will come in and run through them and amongst them and get only a small amount of them, and of course we are debarred from the fish getting out to sea in the proper way.

Q. How close to these inlets would you recommend that the gill nets be allowed to be fished?

A. A mile or a mile and a half distance would take up these narrow deep channels and would enter the shallow, wider water where these gill nets can be fished.

Q. Don't you think that at Lockwood's Folly, if the law was observed that one-half mile would be adequate?

A. I think one-half a mile on the water there would be so short and especially where this class of people are fishing night as well as day, and if a man wants to take advantage he will lap over a little anyhow, and if he laps he has not left you much remainder.

Q. Suppose you had that area staked out by government buoys and had inspectors there to see that the law was enforced, would there be any trouble?

A. I think any distance would be a help. I think if the mullets only had a small space to mill and settle and not be molested, it would help some.

Q. Suppose you had this area staked off and it was against the law to fish there, would they still fish?

A. I would suppose so, to some extent.

Q. If they were to use the gill nets where they ought not to, would you inform on them?

A. I think I would.

Q. Would the other fishermen?

A. Some would and some would not.

Q. Why are these gill nets fished in the region you object to, if they catch nothing?

A. I have had the experience of parties going into unreasonable measures in the way of buying long gill nets and fishing them around the point of my beach, fishing over season and in season, and not getting anything to pay them. At the end of a season they caught them up and hauled them out and got what they could for them.

Q. Do you believe that they do that maliciously and without any benefit accruing to themselves?

A. Yes.

Q. Where were these men from?

A. They were principally from my neighborhood.

Q. What is the length of Lockwood's Folly?

A. Up to the head of the shipping point it is said to be twenty-five miles from the bar.

Q. Is there fishing all the way up that river?

A. Yes.

Q. Where do you market the fish that you catch in these waters?

A. Wilmington, principally.

Q. What would you say was the value of the fish caught here in one season?

A. I can give the amount of the best season I have had. I think I caught about 1,800 barrels. This has been some six or seven years ago. We only get about \$4.72 a barrel.

Q. Are you the largest fisherman in these waters?

A. I generally catch about as many as anybody else around here.

Q. Have you any experience in fishing here in the Cape Fear River?

A. No.

Q. Have you any stake nets?

A. None. I never used a stake net in my life.

Q. Do you catch any sturgeon in these waters?

A. Not that I know of.

MR. WASH HOLDEN.

Another large mullet fisherman of about twenty or twenty-five years experience.

Q. What recommendation have you to make to the committee that, in your opinion, would increase the supply of mullets and let them get to a larger size before they are caught?

A. I don't know. I have thought that the fish raise about every eighteen or twenty years. I know when I was a small boy there were no fish on the coast. Older people said they used to catch lots of fish and could not imagine where the fish had gone. Pretty soon after that we began to catch small fish, and then we began to catch a little larger.

For the last three or four years we have not caught many fish, but I see lots of small ones in the waters. I do not think those little fish ought to be disturbed.

Q. Could they get through a 1 1-8 mesh all right?

A. Yes.

Q. Would they be disturbed on the inside?

A. No; I think not.

Q. What is your idea of the gill net fishing around the inlet?

A. I can not think so. I fish right close to the inlet there, and it has always been my motto that while I fished on the outside I would not hurt those that fished on the inside.

Q. Do you think it is detrimental to have the large seines on the outside?

A. Yes; they run right by me.

Q. The fish run westward from you?

A. Yes.

Q. Have you any recommendations that you would like to make in regard to legislation?

A. I don't know that I have. I know that lots of the poor class of the people who live along the coast have got their living out of the gill nets all their days, and have made a great deal of money at it.

Q. Did I understand that they raised every eighteen years?

A. Yes. I do not know these things, but that is my opinion of it.

Q. What kind of net do you fish?

A. I fish a seine. One of my seines is 452 yards and the other is 400.

Q. Is there any law in this county prescribing the length of the nets?

A. Not that I have heard of.

Q. Are there any men in your neighborhood fishing longer seines than you fish?

A. No; I have never heard of any longer.

Q. How is your catch of fish this year, compared with that of last year?

A. Since this year came in our fishing season has not been good. Our last catch of fish was no account at all; did not pay expenses.

Q. Have you ever had previous years in which you made as poor a catch?

A. Yes, when I was a small boy it was just as poor for six or eight years.

Q. Are there any bluefish caught off your coast?

A. We catch a few occasionally. We do not try to make anything at that.

Q. Was there ever a time when bluefishing was profitable in this section?

A. Not that I can say. I have caught very few.

Q. How is it with the trout?

A. It seems to be difficult to get a trout.

Q. What, in your opinion, is the proper size net?

A. One and one-eighth inch mesh.

Q. What would you think of a law combining the fish and oyster interests, creating a Bureau of Fisheries, similar to the Department of Agriculture, having a general law for the entire State and giving the Board power to make rules and regulations suitable for each county?

A. My answer to that is that I do not know that I am able to answer that question.

Q. Are there any persons engaged in catching oysters or clams down on your waters?

A. In the winter season, yes.

Q. Can you give us an estimate of the number of bushels of clams shipped from your section in any one season?

A. I could have a couple of years ago, but since that I have lost sight of it. There have been such a few caught.

Q. Have the clams decreased as well as the fish?

A. Yes.

Q. How is it with the oysters?

A. They have decreased to some extent.

Q. Are there any persons engaged in planting oyster gardens?

A. No.

Q. Has anybody ever given any attention to oyster culture?

A. No.

Q. Do they catch oysters to ship or just for their own supply?

A. They have been catching oysters there during the winter before this last. They caught a great many oysters for canning.

Q. Was that canning factory still in operation during the past season?

A. No. They did not work at that factory this last season.

Q. Is the supply of oysters very materially decreased in that section?

A. Yes.

Q. You catch altogether the coon oyster?

A. Yes; we can not get anything else, much. We have been having some right smart storms and these oyster creeks are just inside of the main blowing beach. These blowing beaches are a great deal bleaker than they used to be. The sands blow over and kill a lot of oysters. The clam catchers have killed the clams.

Q. Do you think that there ought to be a law passed saying that no clams should be caught less than a certain width across the shell?

A. I think that the time of catching clams ought to be shortened.

Q. What time would you suggest?

A. I think one and a half or two months during the winter season would be enough.

Q. You don't think they ought to have a season of more than two months in which to catch them?

A. I do not.

Q. How is the size of the mullets caught now, compared with those caught a few years ago?

A. Last fall I must have caught in manner none at all. What I caught were very small. What I caught a year or two ago were very large.

Q. Were there any large mullets caught in the last year or two?

A. Very few.

MR. R. W. DAVIS.

Q. How long have you been engaged in fishing?

A. Thirty-five years.

Q. At what point do you do your fishing?

A. I fish in the river from the bar and the little inlets.

Q. What kind of nets do you use?

A. I use gill nets—drift gill nets.

Q. What kind of fish do you catch, principally?

A. I catch more mullets than anything else. I catch all sorts at the different seasons of the year.

Q. What has been your observation—has the catch of mullets increased or decreased in the past five years?

A. The last two years we have had very few mullets. Three years ago there was a large quantity of them. The weather has a good deal to do with that; a strong easterly wind makes them keep on by.

Q. You think the lack of fish during the past two years has been due to nature, and not to the fishermen?

A. We see them at sea, but they do not come close enough for us to catch them.

Q. Do you think the setting of stake nets in the rivers interferes with the catch of fish?

A. They say so, with shad and such like. I know they destroy the roe shad.

Q. What proportion of the shad that are caught and sold in the market are caught in the gill nets?

A. I do not know.

Q. Do you catch bluefish?

A. Very few.

Q. Was there ever a time when many bluefish were caught in these waters?

A. None to my recollection.

Q. Do they catch many croakers?

A. We catch a good many croakers.

Q. Is the catch of croakers as large as it was a few years ago?

A. I don't think so.

Q. To what do you ascribe that?

A. I don't know.

Q. What size mesh do you think ought to be fished in these waters?

A. I think 1 1-4 inch bar is small enough. That is as small as we use.

Q. Is that small enough to catch the mullets that inhabit these waters?

A. Yes; as small as there is any sale for.

Q. Are the mullets caught here as small as they were a few years ago?

A. I do not know. It is according to the season of the year. A small run of fish comes early in August and then the larger ones come and later on in the winter they have what they call the "frost" mullets.

Q. During the past ten years have you had a good catch of mullets whenever the weather was favorable?

A. I think so. Three years ago there were as many mullets caught here as ever I knew of, in my recollection.

Q. Any suggestion you wish to make as to a closed season when no fishing should be allowed?

A. I don't think so.

Q. How do you know they were caught in the pound nets?

A. I have seen them in the pound nets.

Q. Are any pound nets used in your county now?

A. No.

Q. Are any used on the New Hanover side of the Cape Fear?

A. I do not know.

MR. WILLIAM WEEKS.

Q. What suggestions have you to make to us whereby the fishing interests of your county might be improved?

A. I do not think you could give any better satisfaction than to leave it as it is now. Everybody seems to be getting on peaceably and quiet, and I do not see any difference in the fishing now than there was forty years ago. If we have storms in the fall of the year it makes a bad time for mullet fishing. They are driven off shore. I do not believe in catching the small fish. I believe there ought to be a limit in the size of the mesh.

Q. Do you think limiting the size of the mesh is preferable to limiting the size of the fish caught?

A. I think 1 1-8 inch mesh would be small enough.

Q. That applies to the gill nets, but would not 1 1-8 net catch a great many fish smaller than 1 1-8 inch fish?

A. You could not regulate the size of fish. If it was 1 1-8 inch mesh anything smaller than that would go through it. One and one-eighth inch is a marketable fish. As a rule a fish's head is smaller than his body, and when the fish goes in and gills he is held.

Q. Is there no way to liberate these fish before they die?

A. No. I will admit that 1 1-8 inch would haul up a lot of small fish.

Q. What becomes of those that are unsalable?

A. They are either thrown away or used for compost.

Q. In your opinion is that not one reason of the scarcity of fish in these waters?

A. I suppose so.

Q. Are there more men fishing for mullets than there were ten years ago?

A. I think not. I see but very little difference in the fishing now from what it was twenty-five or thirty years ago.

Q. You think the aggregate amount of fish caught is greater than it was ten years ago?

A. Yes; more nets are fished, and I think possibly five times as many fish are caught.

Q. What would you think of a law creating a Fish and Oyster Bureau, placing it under a Commissioner and Board of Directors, and let them regulate the conditions existing in each county?

A. My observation is that we get along very quietly and peaceably now in the fishing industry, and if you have such a commission as that there would be somebody in the court-house all the time reporting somebody.

Q. Is the law being violated in this county?

A. I don't think so.

Q. What would cause them to violate the law?

A. If they were to make any stringent law making certain limits of course the fishermen would go over those points, and by that means somebody would be watching and soon it would be in the courts.

Q. Is it your observation that those that live down at the mouth of the river and inlet are pretty well satisfied with the conditions?

A. I think so. When you legislate against the gill net fisheries you cause a loss to possibly a hundred men that are running gill nets.

Q. Do you think it is unadvisable to have a law limiting the distance from the inlet in which they can fish?

A. I do. I think you ought to let them get fish wherever they can catch them.

Q. Is it your observation that fishing in and near the inlets frightens the fish and make them turn away?

A. I never heard of such. I know they fish right in this bay every night and every day and there is not a day but what they come.

Q. Do you think it would be a good idea not to allow any fishing in the inlet?

A. Yes; I think it would.

Q. How is the territory regulated at the inlet? If a man puts his net in there, how close can another man get to him?

A. You fish right alongside of him, unless he owns the land, like Mr. Holden.

Q. If you had your net down there this gentleman could come and fish right alongside of you?

A. Yes.

Q. Have you had any experience in shad fishing?

A. I had a little experience last winter. Me and my son-in-law had a drop net, but it was not in the river.

Q. Were you successful with that? You are referring to what you call white shad.

A. Not very. We caught some shad, but not as many as we ought to have caught.

Q. What is your opinion as to removing stake nets from the river? Do you think that would be beneficial?

A. I have heard it said there are a good many fish destroyed by the stake nets. They don't tend them regularly and when the tide comes in and drives the fish across them it causes them to fall on the bottom, where they die.

Q. Are there any sturgeon caught in these waters?

A. Every now and then you will hear of some one catching them in a shad net up the river. I remember fifteen or eighteen years ago I counted fifty-some-odd taken out of the water in less than an hour. Since that time it is only once in a while that you will see one.

Q. Do they fish in this part of the river for sturgeon?

A. Not here. I don't think any one has fished for sturgeon in this part of the river for twenty years.

Q. Do you think that the fishing for menhaden has had any effect, injurious or otherwise, upon the other fishing?

A. I do not think so.

Q. Are there any persons engaged in the menhaden fishing except this company?

A. No.

Q. Do many persons catch menhaden and sell to that fishery?

A. There are in season maybe half a dozen nets fished on this shore.

Q. Are there persons specially engaged in shad fishing?

Q. Is there a law prescribing the length of net in these waters?

A. I think so, but we get around that by tying two nets together.

Q. Would you not call that evading the law?

A. I think so.

Q. Has any one ever been indicted for fishing the gill net?

A. I never heard of any one being indicted.

Q. Are the nets, as fished now, too long?

A. They are twice as long as the law permits.

MR. JOHN R. NEWTON.

Q. How long have you been engaged in fishing?

A. I never made a business of it. I have been fishing about thirty years when I had nothing else to do.

Q. How does the supply of fish today compare with what it was ten years ago?

A. Not so many.

Q. To what do you attribute it?

A. The mullet fishing is regulated by weather conditions, storms, etc.

Q. Didn't you always have these storms?

A. Yes.

Q. Why would a storm today run them back more than when you began?

A. I didn't pay as much attention to them before.

Q. What is the proper size mesh to use in gill nets?

A. I use 1 1-4 inch bar and no less for gill nets. I do not fish any drag seines at all.

Q. In your opinion, is that the proper size?

A. If you want more fish you must turn off small ones and you cannot free fish if you catch them in small mesh nets.

Q. What mesh do the drag nets use?

A. One and one-eighth inch.

Q. How about the gill net?

A. The gill nets should be 1 1-4 inch bar.

Q. Is this net being used or is a smaller net being used by the fishermen around here for other purposes?

A. Only for catching shrimp.

Q. A fish net of that size should not be used around the waters here?

A. By no means if you want to save the smaller fish.

Q. What is your idea about purse seining around the waters of the river?

A. They will catch up the small fish.

Q. For that reason you would oppose it?

A. Yes.

Q. In fishing for menhaden you rarely catch any other fish?

A. They catch about as many fish as they can eat on the boat.

Q. Do they do much shrimping in this neighborhood?

A. Very little.

Q. Do they do any for market?

A. Very little.

Q. What information can you give us about the oyster?

A. None at all.

Q. Do you take any interest in the clam business?

A. We get a few clams here, maybe 200 or 300 bushels a season.

Q. What about the white shad fishing?

A. Lots of nets are fished for them. Some seasons they catch a good many.

Q. What is your observation; has there been any material difference in the catch of shad in these waters for the past six or eight years?

A. Not that I know of.

CAPTAIN WATTS.

I can tell you something about mullets for the last twenty-seven years. My experience is that weather conditions affect mullet fishing. If it is a good season they will come; the storm drives them off shore. On the whole, I see no decrease. Last year there were few here that passed on the inside; plenty on the outside.

Q. You think that was owing to the weather conditions?

A. I do. A strong easterly wind keeps them going on the outside.

Q. What size mesh would you recommend?

A. I think for the protection of fish, nothing smaller than 1 1-4 bar should be allowed to be fished on the beaches. I think 1 1-4 inch is small enough for gill nets.

Q. If they were to increase the size of the net from 1 1-8 to 1 1-4 would that increase permit some of the large ones to pass through that they were entitled to catch?

A. That would let through 1 1-4 inch mullets. You know mullets drown. If he gets his head in there he will gill and there is no chance of letting him out alive.

Q. What proportion of fish of the size you indicate do they catch?

A. One in ten.

Q. For the best interest of the fish industry, what size mesh would you recommend?

A. One and one-fourth inch bar.

Q. Have you had any experience in shad fishing?

A. No.

Q. What has been your observation in regard to bluefish?

A. We never have any bluefish to amount to anything on this coast.

Q. How about the mackerel on this coast?

A. We have some Spanish mackerel, but nobody catches them.

Q. What other fish are caught here for market besides the mullets.

A. All kinds of salt water fish except bluefish and mackerel.

MR. WASH HOLDEN.

Q. What is your idea about the size of the mesh?

A. If I were confined to 1 1-4 inch bar I would have to quit fishing. It is generally said by everybody that knows anything about this coast that the majority of the large mullets come around this cape, while the smaller mullets get in through the creeks this side of New Inlet. A 1 1-2 inch mullet will go through a 1 1-8 inch mesh. A mullet about that length is about as small as we ever get, and as far as the fish being dragged up on the beach I have never seen it. I would suppose an inch and a quarter mullet would weigh probably a pound and a half and would be a salable fish.

Q. Do you know anything about sturgeon fishing?

A. No.

A vote was submitted by the Chairman to the meeting as to size of mesh that should be used, with the following result:

Those favoring 1¼ inch mesh.....	3
Those favoring 1½ inch mesh.....	5

MR. MORRISON DIVINE.

I would like to say in answer to statement made by Mr. Holden relative to the pumping of the blood and the slime from the menhaden boats, that I overheard Captain George and Captain Bussels here say that it is their observation that it acts as a lure and draws the fish instead of driving them away. If that is the case it is beneficial rather than detrimental. It is also a logical conclusion that as the bluefish and mullet are both cannibal fish they will certainly consume the slime and the blood.

CAPTAIN BUSSELS.

It is a fact that I have been approached by several citizens in this county and made offers for the privilege of hauling seines along by the factory. It is a fact that menhaden are used as bait along the Atlantic coast to catch bluefish. I have seen bluefish and others follow menhaden

boats for miles to eat the slime from the boats. I never was more surprised in my life than I was to know that such a law was passed by a man in this county.

Q. Is it any trouble for the fishermen to control the discharge?

A. Of course it is a trouble to have it done, and almost an impossibility.

Q. Then you can not observe that law?

A. I can not observe that law.

MR. HOLDEN.

Q. What is your observation as to the slime and blood that is pumped out?

A. You take any kind of what we call bottom fish, as the bluefish, etc., they feed on fish or on scrap. You can put any scrap of fish or shrimp on the hook and you can catch them, but you never have known any one can do that to catch a mullet, because he does not bite anything. When we make a haul on our shores to catch mullets and the tide is rising and the slime comes up on the shore, if the tide does not wash off the slime whenever another school of mullets come up they flash at once. Whenever you go in with a basket of mullets that are bloody, they will flash that minute, and are gone. They will not go where there is any bloody water.

Mr. Peterson:—Mullets won't go anywhere there is bloody water.

Mr. Wash Holden:—Catfish and bluefish and bottom fish all like bloody water, but the mullets will run from bloody water.

CAPTAIN BUSSELS.

Q. What is the distance these haul seines extend from the shore to catch mullets?

A. I do not think those nets can go out more than 450 yards. There is no menhaden fish steamer that can get within 400 yards of the North Carolina coast anywhere. Any slime on the water will go according to the wind. It may be put a quarter of a mile off shore, but would go to the shore if the current is set that way, and it looks like a streak half a mile off shore.

CAPTAIN DIVINE.

I have not much knowledge of fishing, and what I gather is from remarks made here. I do not think Captain Bussels intended to convey the idea that he intended to evade the law. The idea in pumping out the ship is to get the water out, and as menhaden are composed of about 70 per cent of water and oil, in getting rid of this you would naturally have a great deal of slime. It is necessary to get rid of this for the safety of the boat, so that it is a matter of self-preservation, more or less.

CAPTAIN BUSSELS.

I did not mean to say that I do not propose to observe the law. I did not know it was a law until today.

Mr. M. C. Guthrie recommends that a law be passed prohibiting the taking or destroying of turtle eggs.

MEETING HELD ON STEAMER COMPTON.

JULY 24, 1909.

JUDGE GRAHAM.

Mr. Chairman:—It may be difficult to get the committee together after we arrive at the city of Wilmington in the short time there will be between the arrival of the boat and the departure of the train and, because the members may have business to attend to, and I, therefore, would like to say a word before we finally break up for this, our last meeting on the itinerary. I was very much impressed last winter when the resolution was introduced into the House of Representatives with the suggestion in it asking the Bureau of Fisheries at Washington to detail one of its staff to accompany this committee as one of its members, participate in its deliberations, to make suggestions and give advice with a view to promoting the fishing industry of North Carolina, and I have been confirmed in that opinion that it would be well for the State of North Carolina, and especially for the individual members of the committee. I had no idea, however, that they would send to us a gentleman occupying as high a position in the Bureau of Fisheries as the one who was selected, and, not having the pleasure of a personal acquaintance with him, did I have any conception of the ability of the representative and his many endearing qualities of head and heart which have done so much to render these meetings ones of sincere pleasure from beginning to end, and I wish on behalf of the committee to express our most heartfelt appreciation of the services rendered to this committee by Dr. H. F. Moore, of Washington City, and member of the Bureau of Fisheries, and to assure him of the great value of the services he has rendered to the committee and to the State of North Carolina, by his unfailing courtesy, by his clear and intelligent description of the fishing industry not only in our own State but in waters elsewhere, and to extend the thanks of this committee to him for his presence with us and for the services that he has rendered us. If he were not here I would say something about him. I want a record made of this at this time, so that when we make our report to the Legislature of North Carolina we can, in a feeble way, express our estimate of the services rendered to the State by Dr. Moore, and I therefore move that the thanks of this committee be extended to him for his able assistance and his unfailing courtesy to every member of the committee, and to express our appreciation of the large part he has had in rendering this mission so successful and so pleasant.

Senator Travis:—I wish to heartily endorse all that Judge Graham has so well said in respect to Dr. Moore in so far as his duties pertained to the Fish Commission; but in respect to certain matters personal between he and I, that

are well understood between us, we should distinctly record it that they are not embraced in this meeting.

Mr. Currie:—What I said to Dr. Moore the other day I want to repeat that there was a “woe” pronounced against him in the Bible, and he seemed to think he was going to meet with a censure; but I told him, “Woe unto you when all men speak well of you.” Every member of our committee and everybody with whom we have had anything to do, ladies and gentlemen of our party from the beginning to the end, have all expressed their gratification and the pleasure that they have had in knowing Dr. Moore, and in their recollections of this trip, when they turn over the leaves of memory in which they have had so many pleasant recollections, there will hardly be a page but what Dr. Moore will be connected with it. I can say to Dr. Moore that, in connection with the State, that hereafter if it will be our pleasure to have Dr. Moore or any one else with us, that he will come willingly to this old State. I will say, while on my feet, that we have been on the shore and on the sea, on the sound and on the river, that we may never meet again on a mission of this sort, and I trust we may all land on the shining shore where there will be no wave of trouble.

Governor Newland:—The chairman desires to add his hearty endorsement to everything that has been said concerning Dr. Moore, and I, perhaps, am the only member of this party who has a personal grievance against the Doctor; but in a calm and deliberate consideration of the situation I have come to the conclusion that in his shoes I would have done the same thing and, therefore, in parting I want to say that I love you like a brother.

Dr. Moore:—I wish that I could fittingly respond to the very kind expressions to which you have just given voice, but I have always found that I am inarticulate where my deeper feelings are engaged.

I came among you a stranger to all but two of you. Two I met before under very pleasant conditions in the line of duty. The rest of you I had never seen. From the very beginning you received me with the utmost kindness and courtesy; you took every pains to make me feel at home; and your kind treatment has continued to the present time. I have served with a number of committees in boats at various times in the course of my connection with the Bureau of Fisheries, but I have never served with any which has given me such supreme satisfaction in every respect as with this committee. I can say, without any flattery and in the sincerest manner, that this committee and its secretaries are the finest body of men and women I have ever been called to be associated with for such a length of time. I want to thank you heartily for what you have said in regard to my personal relations to you. So far as my official duties were concerned, they are no more than I should have rendered. I will say for the Bureau of Fisheries that it has a very keen interest in what North Carolina is doing. As I had said before, I think you are doing things in the right way and that you are fully in earnest, and if at any time the Bureau can render any service, if you but make it known, it will be rendered, if possible. In respect to the hope expressed here that I shall have an opportunity in the future to serve with you again, I am looking forward to the spring, and I hope that at that time I will be included in the party which is to make a journey, and I can assure you it will give me the heartiest satisfaction to meet with you. Then, collectively and individually, I hope I shall have many opportunities of meeting you all.

Judge Graham:—I think that we, as representing the State, ought to express to the Bureau of Fisheries something of our appreciation of the interest that they have taken in this matter, as shown in their selection of Dr. Moore to represent them on this mission, and I, therefore, move that the chairman of the committee be requested to write a letter to the Bureau of Fisheries, expressing the appreciation of this committee on behalf of our State for the valuable services that Dr. Moore has rendered the State of North Carolina and of the pleasure he has given us individually.

Motion passed.

Governor Newland:—I want to say on my own behalf that I feel I owe this committee something for the uniformly kind and courteous treatment they have given me as chairman, and that I would be less than human if I did not express to them in this meeting my hearty appreciation of the courtesies and consideration rendered me. I do not know what will be the result of our investigations. I am satisfied that each and every one has been in earnest, and I can but hope that good results will come from this investigation. At any rate, whether the State receives any good from it or not, I want to say that I have, physically and mentally. I have seen a part of the State that I have never seen before; my views in a measure have been broadened; and I want to say it is the most delightful trip it has ever been my fortune to have, and it is owing to the kindness and courtesy of this committee.

RESOLUTIONS.

Resolved, That the thanks of this committee be tendered Mr. Morrison Divine for the use of the boat *Compton* for making the trip from Wilmington to Southport and return, and to Captain Bussell for the many courtesies extended by him during that trip.

Resolved, further, That the thanks of the committee be tendered to the citizens of Wilmington who accompanied us on such trip and contributed so much to our pleasure and entertainment.

And we desire to renew our expressions of appreciation of the many kindnesses and courtesies of Col. Geo. L. Morton shown us during our stay in the city of Wilmington and on the trip to Southport.

Mr. Travis:—Now, as a little matter of business, in respect to our spring trip, I would suggest that we take into consideration the fact that we want to visit the different waters during the fishing season in each county, and as the fishing season begins earlier in this section than in the other sections, I think our trip had better begin in the fishing season of these waters and let it progress up the sound so that we will be in the waters during the fishing season of each locality, and I would suggest to Dr. Pratt, if practicable, we will start from the home of our Cumberland friend.

1910 TRIP OF INVESTIGATION

The second trip was made by part of the committee in March, 1910, when the committee visited the fishermen while they were actually engaged at their work.

The following members of the committee were at Wilmington March 14, 1910: A. W. Graham, R. A. Doughton, J. H. Currie, Dr. H. F. Moore, and Joseph Hyde Pratt. The committee were accompanied by Mr. E. H. Baker, of Raleigh, as stenographer.

The first trip was down the Cape Fear River, where the methods of catching and marketing the fish were closely observed. The fish markets of Wilmington were also inspected and information obtained regarding the size and value of fish marketed. The next stop was at Morehead City, where the fish markets were inspected. The Oyster Commissioner's boat, the *Atlantic*, carried the committee from Morehead City through Beaufort Harbor, Core Sound, and up Neuse River to New Bern, stopping *en route* at the Beaufort Laboratory, where the committee had an opportunity to inspect and eat some oysters taken from several of the beds that had been planted by the North Carolina Geological and Economic Survey. At the east end of Core Sound, where the night was spent, the location of natural and planted oyster bottoms was observed.

At New Bern the markets were inspected and considerable information was obtained from fishermen who brought their fish to market on that day. From New Bern to Washington the trip was made over the Norfolk Southern Railroad. At Washington the committee were met by Mr. T. S. Meekins, with the Fish Commission boat, *Gretchen*. After inspecting the fish markets at Washington the committee was taken down Pamlico River and up Pungo River to Belhaven, where they spent Sunday. From Belhaven the committee crossed Pamlico Sound to Hatteras, having an opportunity there to study the location of nets and methods of fishing same in Hyde County and around Hatteras Inlet. The county line between Hyde and Dare counties passes through the center of Hatteras Inlet. On the Dare side the nets were set in accordance with the law, this county being under the Fish Commission, while on the Hyde County side of the line they were not. While *en route* from Hatteras to Manteo, Roanoke Island, the committee had a splendid opportunity to study conditions around Stumpy Point, the Ten Mile Limit, Roanoke Island, and New Inlet. The conditions in Albemarle Sound were studied while *en route* from Manteo to Edenton. At a number of places stops were made to enable the members of the committee

to observe the methods of fishing pound and gill nets and seines. The conditions on Chowan River were also investigated.

OTHER MEETINGS OF COMMITTEE.

During the latter part of the year 1910 several meetings of the committee were held in Raleigh in preparing its report. Several drafts were made and each member had an opportunity of going over these carefully. The report was finally unanimously adopted by the committee and sent to the Legislature, the report being introduced in the House by Mr. Doughton as House Bill No. 293. The bill was thoroughly discussed at joint meetings of the House and Senate committees on fish, which in turn appointed a subcommittee to draft a substitute bill that would embody the changes that the joint committees considered should be made. This bill was drafted, submitted to the members of the Legislative Fish Committee of the General Assembly of 1911 and accepted by them as a compromise bill, as it was endorsed by the Fish Committees of the House and Senate.

REPORT OF LEGISLATIVE FISH COMMITTEE

The following is a copy of the report made by the Legislative Fish Committee to the Legislature of 1911:

A BILL TO BE ENTITLED AN ACT TO ESTABLISH A FISHERIES COMMISSION AND TO PROTECT THE FISHERIES OF NORTH CAROLINA.

The General Assembly of North Carolina do enact:

SECTION 1. That for the purpose of enforcing the laws relating to all commercial fish there is hereby created a Fisheries Commission, which shall consist of a commissioner and the Geological Board and the State Geologist, which said board and said State Geologist, in addition to their duties set forth in chapter 94, section 4432, volume 2, of The Revisal of 1905, shall be clothed with the powers and charged with the duties of enforcing the provisions of this act, and for that purpose shall be denominated the Fisheries Commission Board. The commissioner shall be appointed by the Governor within thirty (30) days after the passage of this act. The commissioner shall be responsible to the Fisheries Commission Board for carrying out of the duties of his office, and shall make semiannual reports to them at such time as they may require. The term of office of said commissioner and his successors in office shall be four years, or until their successors are appointed and qualified, and in case of vacancy in the office the appointment shall be to fill the vacancy. The said commissioner shall appoint two assistant commissioners, by and with the consent of the Fisheries Commission Board, one of whom shall be designated as Assistant Fish Commissioner and the other as Shellfish Commissioner. The aforesaid commissioner and assistant commissioners shall receive such pay as the Fisheries Commission Board shall determine. During the absence of the commissioner, or his inability to act, the Fisheries Commission Board shall appoint one of the assistant commissioners to have and exercise all the powers of the commissioner. The commissioner and assistant commissioners shall each execute and file with the Secretary of State a bond, payable to the State of North Carolina, in the sum of five thousand dollars for the commissioner and twenty-five hundred dollars for each of the assistant commissioners, with securities to be approved by the Secretary of State, conditioned for the faithful performance of their duties and to account for and pay over pursuant to law all moneys received by them in their office. The Fisheries Commissioner and assistant commissioners shall take and subscribe an oath to support the Constitution and for the faithful performance of the duties of his office, which oaths shall be filed with their bonds. The assistant commissioners may be removed for cause by the commissioner, who may appoint their successors.

Sec. 2. *Inspectors.*—The Fisheries Commissioner may appoint, with the approval of the Fisheries Commission Board, inspectors in each county having fisheries under his jurisdiction, who will assist him at such times as he may require. The said inspector shall serve under the direction of the commissioner, receiving compensation not to exceed three dollars per day and necessary expenses while in actual service.

SEC. 3. *Office and Clerical Force.*—The Fisheries Commissioner shall rent and equip an office, which will be adequate for the business of the commission, in some town conveniently located to the maritime fisheries, and he is authorized to employ such clerks and other employees as may be necessary for the proper carrying on of the work of his office, by and with the consent of the Fisheries Commission Board.

SEC. 4. *Equipment.*—The Fisheries Commissioner is authorized, by and with the consent of the Fisheries Commission Board, to purchase or rent such boats, nets, and other equipment as may be necessary to enable him and his assistants to fulfill the duties specified in this act.

SEC. 5. *Duties.*—The commissioner shall enforce all acts relating to the fish and fisheries of North Carolina; he shall, by and with the advice and consent of the Fisheries Commission Board, make such regulations as shall maintain open for the passage of fishes all inlets and not less than one-third of the width of all sounds and streams, or such greater proportions of their width as may be necessary; he shall collect and compile statistics showing the annual product of the fisheries of the State, the capital invested and the apparatus employed, and any fisherman refusing to give these statistics shall be refused a license for the next year; and the Fish Commissioner shall prepare and have on file in his office maps based on the charts of the United States Coast and Geodetic Survey, of the largest scale published, showing as closely as may be the location of all fixed apparatus employed during each fishing season; he shall have surveyed and marked in a prominent manner those areas of waters of the State in which the use of any or all fishing appliances are prohibited by law or regulation, and those areas of waters in the State in which oyster tonging or dredging is prohibited by law; he shall prosecute all violations of the fish laws, and whenever necessary he may employ counsel for this purpose; he shall seize and remove all nets or other appliances set or being used in violation of the fisheries laws of the State, advertise same for twenty days at the courthouse and three other public places, and sell same at public auction at such place as the Fisheries Commissioner shall designate, in the county in which seizure was made, and apply the proceeds of sale to payment of cost and expenses of such removal and sale, and pay any balance remaining into the State Treasury to the credit of the school fund of the county in which the seizure was made; he shall, in an official capacity, have power to administer oaths and to send for and examine persons and papers; he shall be responsible for the collection of all license fees, taxes, rentals, or other imposts on the fisheries, and shall pay same into the State Treasury to the credit of the Fisheries Commission fund; he shall, on or before the twenty-fifth day of each month, mail to the Treasurer of the State a consolidated statement showing the amount of taxes and license fees collected during the preceding month, and by and from whom collected; he shall carry on investigations relating to the migration and habits of the fish in the waters of the State, also investigations relating to the cultivation of the oyster, clam, and other mollusca, and of the terrapin, lobster, and crab, and for this purpose he may employ such scientific assistance as may be authorized by the Fisheries Commission Board.

SEC. 6. *Arrests Without Warrant; When and How Made.*—The Fisheries Commissioner, assistant commissioners and inspectors, shall have power with or without warrants to arrest any person or persons violating any of the fishery laws, who shall be carried before a magistrate for trial according to sec-

tion three thousand one hundred and eighty-two of The Revisal of one thousand nine hundred and five.

SEC. 7. *Power to Take Fish.*—The Fisheries Commissioner and the United States Bureau of Fisheries may take and cause to be taken for scientific purposes, or for fish culture, any fish or other marine organism at any time from the waters of North Carolina, any law to the contrary notwithstanding; and may cause or permit to be sold such fishes or parts of fishes so taken as may not be necessary for purposes of scientific investigations or fish culture: *Provided*, that in taking fish for fish culture in the hatcheries of this State the fish shall only be taken while the hatcheries are in operation and only between the hours of 4 and 11 p. m.

SEC. 8. *No Interest in Fisheries.*—The members of the Fisheries Commission Board, the Fisheries Commissioner, assistant commissioners and inspectors, shall not be financially interested in any fishing industry in North Carolina.

SEC. 9. *Revenue.*—All license fees, taxes, rentals of bottoms for oyster or clam cultivation and other imposts upon the fisheries, in whatever manner collected, shall, except as otherwise provided in this act, be deposited with the State Treasurer to the credit of the Fisheries Commission fund, to be drawn upon as directed by the Fisheries Commission Board.

SEC. 10. *License to Fish and to Catch Oysters.*—Each and every person, firm, or corporation, before commencing or engaging in any kind of fishing in the State, shall file with an inspector of the county in which he desires to fish, or with the Fisheries Commissioner, or one of his assistant commissioners, a sworn statement as to the number and kind of nets, seines, or other apparatus intended to be used in fishing. Upon filing this sworn statement on oath the Fisheries Commissioner shall issue, or cause to be issued, to the said party or parties a license as prescribed by law; said applicant shall pay a license fee equal in amount to the fee or tax prescribed by law for fishing different kinds of apparatus in the waters of the State of North Carolina, or for tonging or dredging for oysters, as the case may be. The Fisheries Commissioner shall keep in a book especially prepared for the purpose an exact record of all licenses, to whom issued, the number and kinds of nets, boats, and other apparatus licensed, and the license fees received. He shall furnish to each person, firm, or corporation in whose favor a license is issued a special tag which will show the license number and number of pound nets, or yards of seine, or yards of gill net that the licensee is authorized to use, and the licensee shall attach said tag to the net in a conspicuous manner satisfactory to the Fisheries Commissioner. All boats or vessels licensed to scoop, scrape, or dredge oysters shall display on the port side of the jib, above the reef and bonnet and on the opposite side of mainsail, above all reef points, in black letters, not less than twenty inches long, the initial letter of the county granting the license and the number of said license, the number to be painted on canvas and furnished by the Fisheries Commissioner, for which he shall receive the sum of fifty cents. Any boat or vessel used in catching oysters without having complied with the provisions of this section may be seized, forfeited, advertised for twenty days at the courthouse and two other public places in the county where seized, and sold at some public place designated in the advertisement, and the proceeds, less the cost of the proceedings, shall be paid into the school fund. The licenses to fish with nets shall all terminate on December thirty-first. Any person who shall willfully use for commercial fishing purposes any kind of net whatever, without having first

complied with the provisions of this section, shall be guilty of a misdemeanor and, upon conviction, shall be fined twenty-five dollars for each and every offense.

SEC. 11. *License for Boat Used in Catching Oysters.*—The Fisheries Commissioner, or Shellfish Commissioner, or inspector, may grant license for a boat to be used in catching oysters upon application made, according to law, and the payment of a license tax as follows: On any boat or vessel without cabin or deck, and under custom house tonnage, using scoops, scrapes, or dredges, measuring over all twenty-five feet and under thirty, a tax of three dollars; fifteen feet and under twenty-five feet, a tax of two dollars; on any boat or vessel with cabin or deck and under custom house tonnage, using scrapes or dredges, measuring over all thirty feet or under, a tax of five dollars; over thirty feet a tax of six dollars; on any boat or vessel using scoops, scrapes, or dredges required to be registered or enrolled in the custom house, a tax of one dollar and fifty cents a ton on gross tonnage. No vessel propelled by steam, gas, or electricity, and no boat or vessel not the property absolutely of a citizen or citizens of this State, shall receive license or be permitted in any manner to engage in the catching of oysters anywhere in the waters of this State.

SEC. 12. *Fishing for Menhaden With Purse Nets.*—Whenever any person or persons, corporation or corporations, may intend to take menhaden (fat-backs), porgies, herring, or other fish in any waters within the jurisdiction of this State, including the waters of the Atlantic Ocean within three nautical miles of the coasts of said State, either on his own account and benefit or on account and benefit of his employer, with purse or shirred nets, such person or persons, corporation or corporations, shall make an application to the Fisheries Commissioner for a license, and, upon the receipt of such application, the Fisheries Commissioner shall, upon the receipt of a sum equal to two dollars for each ton of the net tonnage of each vessel employed in such fishing, said net tonnage to be determined by custom house measurement, as a license fee, issue to such person or persons, corporation or corporations, a license duly signed by the Fisheries Commissioner, which said license shall be valid and in force for the term of one year; all such licenses to be dated from January first, and no license shall be for a space of time less than one year. For every violation of this act the offending person or persons, corporation or corporations, shall be guilty of a misdemeanor and be fined two hundred dollars for each and every offense.

SEC. 13. *Purchase Tax.*—All dealers in oysters and all persons who purchase oysters for canning, packing, shucking, or shipping, shall pay a tax of two cents on every bushel of oysters purchased by them, or caught by them, or by any one for them: *Provided*, that no oyster shall be twice taxed. This tax shall be paid to and collected by the inspectors, and, when paid, a receipt shall be given therefor. Upon failure or refusal by any person, firm, or corporation to pay said tax, his license as a dealer shall at once become null and void, and no further license shall be granted him during the current year; and it shall be the duty of the commissioner, assistant commissioner, or inspector to institute suit for the collection of said tax. Such suit shall be in the name of the State of North Carolina on relation of the commissioner or of the inspector at whose instance such suit is instituted, and the recovery shall be for the benefit and to the use of the General Fisheries Commission fund.

SEC. 14. *License Tax.*—The following license tax is hereby levied annually upon the different fishing appliances used in the waters of North Carolina:

Anchor gill nets, twenty cents per one hundred yards or fraction thereof.

Stake gill nets, ten cents per one hundred yards or fraction thereof.

Drift gill nets, twenty cents per one hundred yards or fraction thereof.

Pound nets, one dollar each.

Seine, drag nets, and mullet nets under one hundred yards, one dollar each.

Seine, drag nets, and mullet nets over one hundred yards and under three hundred yards, one dollar per one hundred yards or fraction thereof.

Seine, drag nets, and mullet nets over three hundred yards and under one thousand yards, one dollar and twenty-five cents per one hundred yards or fraction thereof.

Seine, drag nets, and mullet nets over one thousand yards, one dollar and seventy-five cents per one hundred yards or fraction thereof.

Fyke nets, twenty-five cents each.

Tonging for oysters, the license tax shall be one dollar for each tonger.

SEC. 15. *Reports.*—The Fisheries Commission Board shall cause to be prepared and submitted to each Legislature a report showing the operations, collections and expenditures of the Fisheries Commission; it shall also cause to be prepared for publication such other reports, with necessary illustrations and maps, as will adequately set forth the results of the work and the investigations of the Fisheries Commission, all such reports, illustrations, and maps to be printed and distributed at the expense of the State, as are other public documents, as the Fisheries Commission Board may direct.

SEC. 16. *Appropriation.*—There is hereby appropriated out of the General Treasury as a supplementary fund the sum of ten thousand dollars annually for four years, or as much thereof as may be needed, to the Fisheries Commission to carry out the work of the commission in the protection and promotion of the fisheries of the State, this sum to be repaid to the General Treasury by the Fisheries Commission when it shall be on a self-sustaining basis, said sum to be used and expended as directed by the Fisheries Commission Board, and any part of it that may be required may be used for purchasing boats and other equipment necessary to carry out the work of the commission; and any money that may be in the State Treasury to the credit of the Fish Commission and Oyster Commission fund on the day that this act becomes effective shall be transferred by the State Treasurer to the credit of the Fisheries Commission fund, and the Fisheries Commission Board is hereby authorized to pay out of the Fisheries Commission fund all just claims that may be outstanding against the Fish or Oyster Commissions.

SEC. 17. *Transfer of Equipment.*—All boats, fishing and oyster tackle, office supplies, stationery, and all other supplies of whatever character belonging to the Fish Commission and Oyster Commission shall be transferred to the Fisheries Commissioner for the use of the Fisheries Commission.

SEC. 18. *Jurisdiction of State.*—The State of North Carolina shall have exclusive jurisdiction and control over all the commercial fisheries of the State wherever located.

SEC. 19. It shall be unlawful to place in any of the waters of this State any dynamite, giant or electric powder, or any explosive substance whatever, or any drug or poisoned bait, for the purpose of taking, killing, or injuring fish. And any one violating this section shall be guilty of a misdemeanor and shall, upon conviction, be fined or imprisoned in the discretion of the court.

SEC. 20. It shall be unlawful to discharge or to cause or permit to be discharged into the waters of the State any deleterious or poisonous substance or substances inimical to the fishes inhabiting the said waters; and any person, persons or corporation violating the provisions of this section shall be guilty of a misdemeanor and, upon conviction, be fined or imprisoned in the discretion of the court.

SEC. 21. The Fisheries Commission Board is hereby authorized to regulate, prohibit, or restrict, in time, place, character, and dimensions, the use of nets, appliances, apparatus, or means employed in taking or killing fish; to regulate the seasons at which the various species of fish may be taken in the several waters of the State, and to prescribe the minimum sizes of fish which may be taken in the said several waters of the State; and such regulations, prohibitions, restrictions, and prescriptions, after due publication, shall be of equal force and effect with the provisions of this act; and any person violating the provisions of this section shall be guilty of a misdemeanor, and upon conviction shall be fined or imprisoned at the discretion of the court: *Provided, however,* that if a petition signed by five or more voters of the district or community which will be affected by the proposed change is filed with the Fisheries Commission Board through the Fisheries Commissioner, assistant, commissioners, or inspectors, asking that they have a hearing before any proposed change in the territory, size of mesh, length of net, or time of fishing shall go into effect, petitioning that they be heard regarding said change, the Fisheries Commission Board shall in that event designate by advertisement for a period of thirty days at the courthouse and three other public places in the county affected, and also by publication in a newspaper of the county, if such is published in said county, for two consecutive weeks, a place at which said board will meet and hear argument for and against said change, and may ratify, rescind, or alter this previous order of change as may seem just in the premises.

SEC. 22. Any person or persons removing, injuring, defacing, or in any way disturbing the posts, buoys, or any other appliances used by the Fisheries Commission in marking the restricted areas relating to any and all fishing, or marking other areas in which oyster tonging or dredging is prohibited by law, and those marking oyster bottoms that are leased for oyster cultivation, shall be guilty of a misdemeanor and, upon conviction, shall be fined or imprisoned at the discretion of the court.

SEC. 23. Wherever the word fish or fishes used as a substantive occurs in this act it shall be construed to include porpoises and other marine mammals, fishes, mollusca, and crustaceans, and wherever the word fishing or fisheries occurs it shall be construed to include all operations involved in using, setting, or operating apparatus employed in killing or taking the said animals or in transporting and preparing them for market.

SEC. 24. That all acts relating to the commercial fisheries of North Carolina are hereby amended so that the words "Shellfish Commissioner," "Oyster Commissioner," or "Fish Commissioner" shall read "*Fisheries Commissioner*"; and the words "Shellfish Commission," "Oyster Commission," or "Fish Commission" shall read "*Fisheries Commission*."

SEC. 25. All laws and clauses of laws in conflict with this act are hereby repealed.

SEC. 26. That this act shall be in force from and after its ratification.

It will be interesting at this time to give the opinion of the United States Bureau of Fisheries on the report of the committee, and this opinion was made a part of the report to the General Assembly of 1911:

DEPARTMENT OF COMMERCE AND LABOR

BUREAU OF FISHERIES

WASHINGTON, November 28, 1910.

DR. JOSEPH HYDE PRATT, *State Geologist, Chapel Hill, N. C.*

SIR:—The Bureau acknowledges the receipt of your letter of November 15, submitting for criticism the report of the joint legislative committee on fishery matters which will be transmitted to the North Carolina Legislature of 1911. The Bureau has examined the proposed laws with care, and is pleased to observe that they have both the breadth and flexibility essential to meet the conditions obtaining in North Carolina. The provision for a single commissioner accountable to a board already established, and which has demonstrated its efficiency in connection with the Geological Survey, is regarded as excellent. It centralizes the administration of the fisheries regulations, while at the same time placing at the service of the commissioner the advice, and, if need be, the control, of a body free from bias and local association with the fishing communities.

Safeguarded by this provision, the commissioner properly is given a wide discretion concerning the details of the regulations. While the broad principle of State control of the fisheries is in the opinion of the Bureau the only plan that will prove of lasting value, it is essential that recognition be made of the fact that identical regulations as to nets, close seasons, etc., are not applicable to all localities. After some experience and investigation the commissioner will be in an unequaled position to recommend such regulations as will meet the local requirements and conditions. In respect to this, the Bureau believes that the proposed law is superior to the systems applied in other States and equal to that which has demonstrated its efficiency in the Dominion of Canada. The Bureau is pleased also that there is proposed statutory recognition of the principle of an open channel for the access of fish to the upper waters. The success of the application of this principle to the upper sounds of North Carolina has been attested by an improvement in the fishery and in the increase of the take of shad eggs at Edenton hatchery from six and a half millions in 1905 to seventy millions in 1910.

The oyster regulations do not appear to be materially changed, but the consolidation of the oyster commission with the fishery commission is in the interest of economy and efficiency of administration.

The Bureau feels that it can properly endorse the conclusions of the committee, and expresses the hope that they will be enacted into law for the benefit of not only the fishing communities, but the State of North Carolina as a whole.

Respectfully,
H. M. SMITH,
Acting Commissioner.

The bill carried an appropriation, and was reported favorably by the committee on appropriations.

This substitute bill, after considerable debate, passed the House without amendment; but when it came up in the Senate it was so amended

that it did not apply to certain counties, and after the amendments were passed the bill was defeated.

To satisfy a very few, and out of *senatorial courtesy*, a State-wide bill was allowed to be defeated, and a large and important State industry was permitted not only to be retarded in its growth, but to actually decline. It was a severe blow to the fishing industry of North Carolina; but those who have the interest of the State of North Carolina at heart and are thoroughly familiar with the dangers that beset this industry are harder at work than ever to create a sentiment for the protection and perpetuation of fishing industries. They realize that they must carry on a campaign of education; that the fishermen must be given accurate information as to what the protection of these industries will mean to them, and that the measures advocated are absolutely necessary if they and their children are to continue to make a livelihood out of fishing; and the citizens, indeed, must have the information that will show them that the fish and oysters are decreasing; that the industries are growing less and less, and what could be made a most flourishing industry in the State is becoming less and less every year; that what is a State industry and a State problem has been considered purely as a local problem; that an asset which belongs to all the people is being destroyed by a few.

North Carolina, with its great extent of salt and fresh waters, should be near the top of the list of the Atlantic States in value of its fish industry. Instead it stands eleventh. Massachusetts is first, Virginia second, Maryland fifth, and even little Connecticut comes ninth.

We can build up this industry if we will carry out similar measures to those that other States have carried out.

PUBLICATIONS
OF THE
NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY

BULLETINS.

1. Iron Ores of North Carolina, by Henry B. C. Nitze, 1893. 8°, 239 pp., 20 pl., and map. *Out of print.*
2. Building and Ornamental Stones in North Carolina, by T. L. Watson and F. B. Laney in collaboration with George P. Merrill, 1906. 8°, 283 pp., 32 pl., 2 figs. *Postage 25 cents. Cloth-bound copy 30 cents extra.*
3. Gold Deposits in North Carolina, by Henry B. C. Nitze and George B. Hanna, 1896. 8°, 196 pp., 14 pl., and map. *Out of print.*
4. Road Material and Road Construction in North Carolina, by J. A. Holmes and William Cain, 1893. 8°, 88 pp. *Out of print.*
5. The Forests, Forest Lands and Forest Products of Eastern North Carolina, by W. W. Ashe, 1894. 8°, 128 pp., 5 pl. *Postage 5 cents.*
6. The Timber Trees of North Carolina, by Gifford Pinchot and W. W. Ashe, 1897. 8°, 227 pp., 22 pl. *Out of print.*
7. Forest Fires: Their Destructive Work, Causes, and Prevention, by W. W. Ashe, 1895. 8°, 66 pp., 1 pl. *Postage 5 cents.*
8. Water-powers in North Carolina, by George F. Swain, Joseph A. Holmes and E. W. Myers, 1899. 8°, 362 pp., 16 pl. *Postage 16 cents.*
9. Monazite and Monazite Deposits in North Carolina, by Henry B. C. Nitze, 1895. 8°, 47 pp., 5 pl. *Postage 4 cents.*
10. Gold Mining in North Carolina and other Appalachian States, by Henry B. C. Nitze and A. J. Wilkins, 1897. 8°, 164 pp., 10 pl. *Out of print.*
11. Corundum and the Basic Magnesium Rocks of Western North Carolina, by J. Volney Lewis, 1895. 8°, 107 pp., 6 pl. *Postage 4 cents.*
12. History of the Gems Found in North Carolina, by George Frederick Kunz, 1907. 8°, 60 pp., 15 pl. *Postage 8 cents. Cloth-bound copy 30 cents extra.*
13. Clay Deposits and Clay Industries in North Carolina, by Heinrich Ries, 1897. 8°, 157 pp., 12 pl. *Postage 10 cents.*
14. The Cultivation of the Diamond-back Terrapin, by R. E. Coker, 1906. 8°, 67 pp., 23 pl., 2 figs. *Out of print.*
15. Experiments in Oyster Culture in Pamlico Sound, North Carolina, by Robert E. Coker, 1907. 8°, 74 pp., 17 pl., 11 figs. *Postage 6 cents.*
16. Shade Trees for North Carolina, by W. W. Ashe, 1908. 8°, 74 pp., 10 pl., 16 figs. *Postage 6 cents.*
17. Terracing of Farm Lands, by W. W. Ashe, 1908. 8°, 38 pp., 6 pl., 2 figs. *Postage 4 cents.*
18. Bibliography of North Carolina Geology, Mineralogy and Geography, with a list of Maps, by Francis Baker Laney and Katherine Hill Wood, 1909. 8°, 428 pp. *Postage 25 cents. Cloth-bound copy 30 cents extra.*
19. The Tin Deposits of the Carolinas, by Joseph Hyde Pratt and Douglass B. Sterrett, 1905. 8°, 64 pp., 8 figs. *Postage 4 cents.*
20. Water-powers of North Carolina: An Appendix to Bulletin 8, 1910. 8°, 383 pp. *Postage 25 cents.*
21. The Gold Hill Mining District of North Carolina, by Francis Baker Laney, 1910. 8°, 137 pp., 23 pl., 5 figs. *Postage 15 cents.*
22. A Report on the Cid Mining District, Davidson County, N. C., by J. E. Pogue, Jr., 1911. 8°, 144 pp., 22 pl., 5 figs. *Postage 15 cents.*
23. Forest Conditions in Western North Carolina, by J. S. Holmes, 1911. 8°, 115 pp., 8 pl. *Postage 15 cents.*

ECONOMIC PAPERS.

1. The Maple Sugar Industry in Western North Carolina, by W. W. Ashe, 1897. 8°, 34 pp. *Postage 2 cents.*
2. Recent Road Legislation in North Carolina, by J. A. Holmes. *Out of print.*

3. Talc and Pyrophyllite Deposits in North Carolina, by Joseph Hyde Pratt, 1900. 8°, 29 pp., 2 maps. *Postage 2 cents.*

4. The Mining Industry in North Carolina During 1900, by Joseph Hyde Pratt, 1901. 8°, 36 pp., and map. *Postage 2 cents.*

Takes up in some detail Occurrences of Gold, Silver, Lead and Zinc, Copper, Iron, Manganese, Corundum, Granite, Mica, Talc, Pyrophyllite, Graphite, Kaolin, Gem Minerals, Monazite, Tungsten, Building Stones, and Coal, in North Carolina.

5. Road Laws of North Carolina, by J. A. Holmes. *Out of print.*

6. The Mining Industry in North Carolina During 1901, by Joseph Hyde Pratt, 1902. 8°, 102 pp. *Postage 4 cents.*

Gives a list of Minerals found in North Carolina; describes the Treatment of Sulphuret Gold Ores, giving Localities; takes up the Occurrence of Copper in the Virgilina, Gold Hill, and Ore Knob districts; gives Occurrence and Uses of Corundum; a List of Garnets, describing Localities; the Occurrence, Associated Minerals, Uses and Localities of Mica; the Occurrence of North Carolina Feldspar, with Analyses; an extended description of North Carolina Gems and Gem Minerals; Occurrences of Monazite, Barytes, Ocher; describes and gives Occurrences of Graphite and Coal; describes and gives Occurrences of Building Stones, including Limestones; describes and gives Uses for the various forms of Clay; and under the head of "Other Economic Minerals" describes and gives Occurrences of Chromite, Asbestos, and Zircon.

7. Mining Industry in North Carolina During 1902, by Joseph Hyde Pratt, 1903. 8°, 27 pp. *Postage 2 cents.*

8. The Mining Industry in North Carolina During 1903, by Joseph Hyde Pratt, 1904. 8°, 74 pp. *Postage 4 cents.*

Gives descriptions of Mines worked for Gold in 1903; descriptions of Properties worked for Copper during 1903, together with assay of ore from Twin-Edwards Mine; Analyses of Limonite ore from Wilson Mine; the Occurrence of Tin; in some detail the Occurrences of Abrasives; Occurrences of Monazite and Zircon; Occurrences and Varieties of Graphite, giving Methods of Cleaning; Occurrences of Marble and other forms of Limestone; Analyses of Kaolin from Barber Creek, Jackson County, North Carolina.

9. The Mining Industry in North Carolina During 1904, by Joseph Hyde Pratt, 1905. 8°, 95 pp. *Postage 4 cents.*

Gives Mines Producing Gold and Silver during 1903 and 1904 and Sources of the Gold Produced during 1904; describes the mineral Chromite, giving Analyses of Selected Samples of Chromite from Mines in Yancey County; describes Commercial Varieties of Mica, giving the manner in which it occurs in North Carolina, Percentage of Mica in the Dikes, Methods of Mining, Associated Minerals, Localities, Uses; describes the mineral Barytes, giving Method of Cleaning and Preparing Barytes for Market; describes the use of Monazite as used in connection with the Preparation of the Bunsen Burner, and goes into the use of Zircon in connection with the Nerst Lamp, giving a List of the Principal Yttrium Minerals; describes the minerals containing Corundum Gems, Hiddenite and Other Gem Minerals, and gives New Occurrences of these Gems; describes the mineral Graphite and gives new Uses for same.

10. Oyster Culture in North Carolina, by Robert E. Coker, 1905. 8°, 39 pp. *Out of print.*

11. The Mining Industry in North Carolina During 1905, by Joseph Hyde Pratt, 1906. 8°, 95 pp. *Postage 4 cents.*

Describes the mineral Cobalt and the principal minerals that contain Cobalt; Corundum Localities; Monazite and Zircon in considerable detail, giving Analyses of Thorianite; describes Tantalum Minerals and gives description of the Tantalum Lamp; gives brief description of Peat Deposits; the manufacture of Sand-lime Brick; Operations of Concentrating Plant in Black Sand Investigations; gives Laws Relating to Mines, Coal Mines, Mining, Mineral Interest in Land, Phosphate Rock, Marl Beds.

12. Investigations Relative to the Shad Fisheries of North Carolina, by John N. Cobb, 1906. 8°, 74 pp., 8 maps. *Postage 6 cents.*

13. Report of Committee on Fisheries in North Carolina. Compiled by Joseph Hyde Pratt, 1906. 8°, 78 pp. *Out of print.*

14. The Mining Industry in North Carolina During 1906, by Joseph Hyde Pratt, 1907. 8°, 144 pp., 20 pl., and 5 figs. *Postage 10 cents.*

Under the head of "Recent Changes in Gold Mining in North Carolina," gives methods of mining, describing Log Washers, Square Sets, Cyanide Plants, etc., and detailed descriptions of Gold Deposits and Mines are given; Copper Deposits of Swain County are described; Mica Deposits of Western North Carolina are described, giving Distribution and General Character, General Geology, Occurrence, Associated Minerals, Mining and Treatment of Mica, Origin, together with a description of many of the mines; Monazite is taken up in considerable detail as to Location and Occurrence, Geology, including classes of Rocks, Age, Associations, Weathering, method of Mining and Cleaning, description of Monazite in Original Matrix.

15. The Mining Industry in North Carolina During 1907, by Joseph Hyde Pratt, 1908. 8°, 176 pp., 13 pl., and 4 figs. *Postage 15 cents.*

Takes up in detail the Copper of the Gold Hill Copper District; a description of the Uses of Monazite and its Associated Minerals; descriptions of Ruby, Emerald, Beryl, Hiddenite, and Amethyst Localities; a detailed description with Analyses of the Principal Mineral Springs of North Carolina; a description of the Peat Formations in North Carolina, together with a detailed account of the Uses of Peat and the Results of an Experiment Conducted by the United States Geological Survey on Peat from Elizabeth City, North Carolina.

16. Report of Convention called by Governor R. B. Glenn to Investigate the Fishing Industries in North Carolina, compiled by Joseph Hyde Pratt, State Geologist, 1908. 8°, 45 pp. *Postage 4 cents.*

17. Proceedings of Drainage Convention held at New Bern, North Carolina, September 9, 1908. Compiled by Joseph Hyde Pratt, 1908. 8°, 94 pp. *Postage 5 cents.*

18. Proceedings of Second Annual Drainage Convention held at New Bern, North Carolina, November 11 and 12, 1909, compiled by Joseph Hyde Pratt, and containing North Carolina Drainage Law, 1909. 8°, 50 pp. *Postage 3 cents.*

19. Forest Fires in North Carolina During 1909, by J. S. Holmes, Forester, 1910. 8°, 52 pp., 9 pl. *Postage 5 cents.*

20. Wood-using Industries of North Carolina, by Roger E. Simmons, under the direction of J. S. Holmes and H. S. Sackett, 1910. 8°, 74 pp., 6 pl. *Postage 7 cents.*

21. Proceedings of the Third Annual Drainage Convention, held under Auspices of the North Carolina Drainage Association; and the North Carolina Drainage Law (codified). Compiled by Joseph Hyde Pratt, 1911. 8°, 67 pp., 3 pl. *Postage 5 cents.*

22. Forest Fires in North Carolina During 1910, by J. S. Holmes, Forester, 1911. 8°, 48 pp. *Postage 3 cents.*

23. Mining Industry in North Carolina During 1908, '09, and '10, by Joseph Hyde Pratt and Miss H. M. Berry, 1911. 8°, 134 pp., 1 pl., 27 figs. *Postage 15 cents.*

Gives report on Virginiana Copper District of North Carolina and Virginia, by F. B. Laney; Detailed report on Mica Deposits of North Carolina, by Douglas B. Sterrett; Detailed report on Monazite, by Douglas B. Sterrett; Reports on various Gem Minerals, by Douglas B. Sterrett; Information and Analyses concerning certain Mineral Springs; Extract from Chance Report of the Dan River and Deep River Coal Fields; Some notes on the Peat Industry, by Professor Charles A. Davis; Extract from report of Arthur Keith on the Nantahala Marble; Description of the manufacture of Sand-lime Brick.

24. Fishing Industry of North Carolina, by Joseph Hyde Pratt, 1911. 8°, 44 pp. *Postage 5 cents.*

25. Proceedings of Second Annual Convention of the North Carolina Forestry Association, held at Raleigh, North Carolina, February 21, 1912. Forest Fires in North Carolina During 1911. Suggested Forestry Legislation. Compiled by J. S. Holmes, Forester, 1912. 8°, 71 pp. *Postage 5 cents.*

26. Proceedings of Fourth Annual Drainage Convention, held at Elizabeth City, North Carolina, November 15 and 16, 1911, compiled by Joseph Hyde Pratt, State Geologist, 1912. 8°, 45 pp. *Postage 3 cents.*

27. Highway Work in North Carolina, containing a Statistical Report of Road Work during 1911, by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1912. 8°, 145 pp., 11 figs. *Postage 10 cents.*

28. Culverts and Small Bridges for Country Roads in North Carolina, by C. R. Thomas and T. F. Hickerson, 1912. 8°, 56 pp., 14 figs., 20 pl. *Postage 10 cents.*

29. Report of the Fisheries Convention Held at New Bern, N. C., December 13, 1911, compiled by Joseph Hyde Pratt, State Geologist, together with a Compendium of the Stenographic Notes of the Meetings Held on the Two Trips taken by the Legislative Fish Committee Appointed by the General Assembly of 1909, and the Legislation Recommended by this Committee, 1912. 8°, .. pp. *Postage .. cents.*

30. Proceedings of the Annual Convention of the North Carolina Good Roads Association held at Charlotte, N. C., August 1 and 2, 1912, in Coöperation with the North Carolina Geological and Economic Survey, compiled by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1912. 8°, .. pp. *Postage .. cents.*

VOLUMES.

Vol. I. Corundum and the Basic Magnesian Rocks in Western North Carolina, by Joseph Hyde Pratt and J. Volney Lewis, 1905. 8°, 464 pp., 44 pl., 35 figs. *Postage 32 cents. Cloth-bound copy 30 cents extra.*

Vol. II. Fishes of North Carolina, by H. M. Smith, 1907. 8°, 453 pp., 21 pl., 188 figs. *Postage 30 cents.*

Vol. III. The Coastal Plain Deposits of North Carolina, by Wm. Bullock

Clark, Benjamin L. Miller, L. W. Stephenson, B. L. Johnson, and Horatio N. Parker, 1912. 8°, 509 pp., 62 pl., 21 figs. *Postage 35 cents.*

Pt. I.—The Physiography and Geology of the Coastal Plain of North Carolina, by Wm. Bullock Clark, Benjamin L. Miller, and L. W. Stephenson.

Pt. II.—The Water Resources of the Coastal Plain of North Carolina, by L. W. Stephenson and B. L. Johnson.

BIENNIAL REPORTS.

First Biennial Report, 1891-1892, J. A. Holmes, State Geologist, 1893. 8°, 111 pp., 12 pl., 2 figs. *Postage 6 cents.*

Administrative report, giving Object and Organization of the Survey; Investigations of Iron Ores, Building Stone, Geological Work in Coastal Plain Region, including supplies of drinking-waters in eastern counties, Report on Forests and Forest Products, Coal and Marble, Investigations of Diamond Drill.

Biennial Report, 1893-1894, J. A. Holmes, State Geologist, 1894. 8°, 15 pp. *Postage 1 cent.*

Administrative report.

Biennial Report, 1895-1896, J. A. Holmes, State Geologist, 1896. 8°, 17 pp. *Postage 1 cent.*

Administrative report.

Biennial Report, 1897-1898, J. A. Holmes, State Geologist, 1898. 8°, 28 pp. *Postage 2 cents.*

Administrative report.

Biennial Report, 1899-1900, J. A. Holmes, State Geologist, 1900. 8°, 20 pp. *Postage 2 cents.*

Administrative report.

Biennial Report, 1901-1902, J. A. Holmes, State Geologist, 1902. 8°, 15 pp. *Postage 1 cent.*

Administrative report.

Biennial Report, 1903-1904, J. A. Holmes, State Geologist, 1905. 8°, 32 pp. *Postage 2 cents.*

Administrative report.

Biennial Report, 1905-1906, Joseph Hyde Pratt, State Geologist, 1907. 8°, 60 pp. *Postage 3 cents.*

Administrative report; report on certain swamp lands belonging to the State, by W. W. Ashe; it also gives certain magnetic observations at North Carolina stations.

Biennial Report, 1907-1908, Joseph Hyde Pratt, State Geologist, 1908. 8°, 60 pp., 2 pl. *Postage 5 cents.*

Administrative report. Contains Report on Sand Banks along the North Carolina Coast, Jay F. Bond, Forest Assistant, United States Forest Service; certain magnetic observations at North Carolina stations; Results of an investigation Relating to Clam Cultivation, by Howard E. Enders of Purdue University.

Biennial Report, 1909-1910, Joseph Hyde Pratt, State Geologist, 1911. 8°, 152 pp. *Postage 10 cents.*

Administrative report, and contains Agreements for Co-operation in Statistical Work, and Topographical and Traverse Mapping Work with the United States Geological Survey; Forest Work with the United States Department of Agriculture (Forest Service); List of Topographic maps of North Carolina and counties partly or wholly topographically mapped; description of special Highways in North Carolina; suggested Road Legislation; list of Drainage Districts and Results of Third Annual Drainage Convention; Forestry reports relating to Connolly Tract; Buncombe County, Transylvania County State Farm, certain Watersheds, Reforestation of Cut-over and Abandoned Farm Lands, on the Woodlands of the Salem Academy and College; Recommendations for the Artificial Regeneration of Long-leaf Pine at Pinehurst; Act regulating the use of and for the Protection of Meridian Monuments and Standards of Measure at the several county-seats in North Carolina; list of Magnetic Declination at the county-seats, January 1, 1910; letter of Fish Commissioner of the United States Bureau of Fisheries relating to the conditions of the North Carolina fish industries; report of the Survey for the North Carolina Fish Commission referring to dutch or pound-net fishing in Albemarle and Croatan sounds and Chowan River, by Gilbert T. Rude, of the United States Coast and Geodetic Survey; Historical Sketch of the several North Carolina Geological Surveys, with list of publications of each.

Samples of any mineral found in the State may be sent to the office of the Geological and Economic Survey for identification, and the same will be classified free of charge. It must be understood, however, that NO ASSAYS, OR QUANTITATIVE DETERMINATIONS, WILL BE MADE. Samples should be in a lump form if possible, and marked plainly on outside of package with name of sender, post-office address, etc.; a letter should accompany sample and stamp should be enclosed for reply.

These publications are mailed to libraries and to individuals who may desire information on any of the special subjects named, free of charge, except that in each case applicants for the reports should forward the amount of postage needed, as indicated above, for mailing the bulletins desired, to the State Geologist, Chapel Hill, N. C.

NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY

JOSEPH HYDE PRATT, State Geologist

ECONOMIC PAPER No. 30

Proceedings of the Annual Convention of the North Carolina
Good Roads Association, Held at Charlotte, N. C.,
August 1 and 2, 1912, in Cooperation with the
North Carolina Geological and
Economic Survey

Compiled by

JOSEPH HYDE PRATT, State Geologist, and Miss H. M. BERRY, Secretary



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LETTER OF TRANSMITTAL

CHAPEL HILL, N. C., October 1, 1912.

To His Excellency, HON. W. W. KITCHIN,
Governor of North Carolina.

SIR:—There was held at Charlotte, North Carolina, on August 1 and 2, 1912, the Annual Convention of the North Carolina Good Roads Association. This was held in coöperation with the North Carolina Geological and Economic Survey. On account of the success and importance of this Convention, and the interest its proceedings would have for the State at large, I recommend that these be published as Economic Paper No. 30 of the Publications of the North Carolina Geological and Economic Survey.

Yours respectfully,

JOSEPH HYDE PRATT,

State Geologist.

PREFACE

The North Carolina Geological and Economic Survey has for the past twelve years worked in close coöperation with the North Carolina Good Roads Association in waging an educational campaign for better roads throughout the State. There was held at Charlotte, North Carolina, August 1 and 2, the Annual Convention of the North Carolina Good Roads Association, which turned out to be the most successful Good Roads Convention ever held within the State. There were present between 400 and 500 delegates from the following 55 counties:

Alamance, Anson, Avery, Beaufort, Brunswick, Buncombe, Cabarrus, Catawba, Chatham, Davidson, Davie, Duplin, Durham, Edgecombe, Forsyth, Gaston, Gates, Granville, Guilford, Halifax, Harnett, Henderson, Iredell, Johnston, Jones, Lenoir, Lincoln, Mecklenburg, Moore, Nash, New Hanover, Orange, Person, Pitt, Randolph, Richmond, Robeson, Rowan, Rutherford, Sampson, Scotland, Stanly, Stokes, Surry, Transylvania, Union, Vance, Wake, Washington, Wayne, Wilkes, Wilson, Yadkin, and Yancey.

It is very probable that other counties were represented, as a good many of the delegates failed to register. Others were present also from New York, Georgia, Virginia, Maryland, and the District of Columbia. The personnel of the delegates included all professions: Farmers, doctors, lawyers, teachers, business men, etc.

The two days of the Convention were full of interesting information regarding the various questions affecting good roads, there being addresses and discussions regarding road legislation, financing roads, and the more practical phases of building of various types of road, use of binders, etc.

Believing that the proceedings of this Convention would be of interest and profit to other citizens of the State who were prevented from attending the Convention, the notes, as reported by an expert stenographer, are being herewith printed as a report of the North Carolina Geological and Economic Survey. It may be of interest to note some of the press comments regarding the work of the Convention.

The *Kinston Free Press* writes as follows:

The State Good Roads Association has asked the approaching Legislature for a big sum—twenty million dollars—for good roads.

It is a big sum, but not so big as a number of States have put up for this purpose. These States have found that it has paid them in many ways to spend big money in road work.

The amount that a State, county or municipality spends is not of so much importance as how it spends it. A small amount well expended makes

a big paying investment. And when a big amount is spent judiciously the results are proportionately more gratifying.

It would be a great mistake for the State to make an appropriation, great or small, for the public roads unless coupled with a provision for such scientific supervision as to render effective every penny of the sum appropriated. And as matters now stand, it is a great mistake for counties to raise and spend money on road work unless the expenditures are made under the direction of competent supervisory authorities. Money spent without competent supervision is usually money wasted. The State is in a position today to appreciate the value of good roads better than ever before. Practically every county is more or less alive on the subject. Now is the time to coördinate this opinion and marshal the good roads sentiment so as to bring about the best results through the adoption of a comprehensive plan and the appropriation of the necessary sinews of war.

The *Greensboro Daily News* has the following to say:

The adoption of resolutions which clearly and forcibly outline the policies and purposes of the North Carolina Good Roads Association and which reiterate former demands that the State aid in the building of highways was the distinctive feature of the second and final day's session of the Annual Convention of that organization in Charlotte, Friday. The resolution adopted asks that the State appropriate \$1,000,000 annually for good roads for the next twenty years, making loans to counties which desire to build good roads, and in general assuming the attitude of a Building and Loan Association. The resolutions condemn the present system of leasing convicts, urge a higher license tax on automobiles, the revenue to go to the maintenance of a State Highway Commission, heartily endorse the project to secure State and Federal Aid for good road building and ring clear on every question which is vital to the cause of good roads. Two crowded sessions marked the closing day, addresses, resolutions, election of officers, open discussions and inspection of practical road building, with a batch of routine work being injected into the proceedings. Decision of a time and place for the next meeting was left with the executive committee, with the suggestion that it be called at a time during the session of the coming Legislature in Raleigh.

In the adoption of the resolutions, which in the main epitomize the larger works and stronger thoughts expressed by the speakers, the convention displayed keen interest and discussed fully and frankly each of the score of paragraphs. In support of that urging a \$20,000,000 State appropriation by bonds, President Varner declared that the California Legislature has just passed a law providing for \$18,000,000; New York has made arrangements for \$50,000,000, and Maryland for a vast sum, all to be expended in a manner similar to that urged by the North Carolina Association. The resolutions also urge with repeating emphasis the necessity of a State supervision, either through the offices of a Highway Commission or through the Geological and Economic Survey.

The resolutions as finally adopted begin with the startling assertion by way of preamble: "Realizing that the State of North Carolina, through her present county and township system of road administration, is annually wasting in money and labor at least \$900,000, and her present system of bad roads is now annually costing at least \$12,000,000, the Convention of the North Carolina Good Roads Association would go on record as most heartily endorsing the changes and methods of procedure as embodied in the appended resolutions."

The *Charlotte Evening Chronicle* writes as follows regarding the local associations:

The Good Roads Association is a needed organization and organizations should be effected in every township in the State. A preliminary meeting, with speeches, is the first step, and then the election of officers. Too often is this also the ending of the associational history. This is wrong. The organization is the first step and then comes the real work—the location and the building of roads. In the last issue of the *Good Roads Magazine* an interesting editorial appears, and it strikes at the root of the matter. In speaking of the failure of some associations to accomplish, the editorial says: "The association is called to order. There are boring speeches that no one listens to and that no one should listen to, for there is nothing new in them. There is no end of resolving and promising, all of which goes into the discard. All of the grandstand boys do their little stunts, and 'one of the most successful conventions in the history of the association' comes to an end."

This is the record of some associations, and consequently the building of roads is delayed and the interested individuals are discouraged. The same editorial also has this good suggestion: "The successful association and the association that does things is one that has a real working organization. Its executive committee consists of men who do things and not of a bunch of ancient and honored names. Its secretary is on the job every day in the year. He is not selected merely to ornament the table at the right hand of the president during convention week. He is ready to help the good roads cause. If there is need of a speaker to plead with the people for road improvement in a backward country district, he is able either to send a man or go himself. The president of the right brand has nothing of the grandstander in his make-up and is willing to work long and hard for road improvement, expecting no other reward than a pleasing consciousness of duty well done."

North Carolina needs these associations and they are being organized in almost every section of the State. Let those who are placed at the head of the local township association, and likewise the officers of the county association, see to it that work is done. Make plans. Agitate the question for local bond issues for building roads. Influence the members of the Legislature in the matter of State aid for better highways. Keep constantly on the job.

The delegates throughout the sessions of the Convention showed a marked spirit of determination for the State as a State to move forward in this most progressive movement. Throughout the proceedings was heard the constant cry for the State to assist ALL her counties in this important work, and that the stronger counties should help the weaker ones. This is most encouraging, as it shows a broader spirit than has heretofore been felt in connection with the good roads movement.

JOSEPH HYDE PRATT,
State Geologist.

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PROCEEDINGS

OF THE

Annual Convention of the North Carolina Good Roads Association

HELD AT

CHARLOTTE, N. C., AUGUST 1 and 2, 1912

In Co-operation with the North Carolina Geological and
Economic Survey

Compiled by JOSEPH HYDE PRATT, State Geologist, and Miss H. M. BERRY, Secretary.

MORNING SESSION.

THURSDAY, AUGUST 1, 10:00 o'clock.

At ten o'clock in the City Auditorium at Charlotte the Annual Convention of the North Carolina Good Roads Association was called to order by the President, Hon. H. B. Varner. He called on the Rev. D. H. Rolston, pastor of the First Presbyterian Church of Charlotte, who opened the Convention with the following prayer:

Oh, Thou Eternal and ever blessed God, we invoke Thy blessing to rest upon this gathering of Thy servants. We thank Thee for Thy guiding hand in the affairs of our commonwealth. We thank Thee for bringing our fathers from distant shores; for inspiring them with courage and giving them strength to subdue the wilderness. We bless Thee for everything that has come down to us, Thy sons.

Grant, we beseech Thee, that in this gathering today these Thy servants may live up to the things that have been committed unto them by those who have gone before. Grant, we beseech Thee, that they may deliberate wisely and well, for the good of the commonwealth, knowing that in the commonwealth the name of God is glorified. We pray that Thou wilt raise up many of Thy servants who are making the highways safe and passable—as Thou didst in the old time—raise up the highways to make Israel safe. Grant that we may rejoice in the good things that Thou hast given us. Grant that our souls may delight in Thy dwelling-place. Let Thy blessing rest upon each individual here; upon all the interests represented. We rejoice that we can bring our temporal interests to Thee, being assured of Thy blessing to us, when we seek Thy guidance. And now we commit ourselves unto Thee. Pardon our sins, and bless this convention in all of its sessions, we ask in Thy name. *Amen.*

Addresses of Welcome.

FOR THE CITY OF CHARLOTTE.

HON. CHARLES A. BLAND, MAYOR.

Gentlemen of the North Carolina Good Roads Association:—In extending a welcome to you, I would like for you to look back a few years to that narrow strip of red clay which ran between two rail fences, which was hardly room for two conveyances to pass. It is true the "bob-whites" whistled in the fence corners, and the honeysuckle ran riot over the trees, and the wild flowers bloomed, and the mocking birds filled the air with music—but oh, what roads, gentlemen!

It reminds me of the gentleman who said that the roads were so bad in this part of the country that he could not raise pigs. That the mud was so deep it would cover the pigs until just their tails stuck out, and a ball of mud would gather on the pigs' tails and pull the skin so tight that the pigs could not close their eyes, and therefore died from the want of sleep.

We are face to face with the greatest problem that has ever confronted us, gentlemen. Imperial Rome, on her hills, subdued and conquered the whole world on account of the great roads she had. We look at France, Germany and England. Their roads are, today, marvels of engineering skill and of work. These roads stand in the forefront of civilization, and Turkey—it has been said that the Sultan of Turkey discouraged the building of roads for fear that his subjects would get together too rapidly and foment a revolution which would overthrow the monarchy, and come to the forefront of civilization.

Spain is a country that is behind, and it is not noted for its good roads.

There have been many things said about this subject of road building; many of you here know a great deal more about it than I do, or will ever dream of knowing; yet I know that North Carolina has been one of the greatest movers in the construction of good roads, and the time will not be far distant when the people from the North will come down and crowd our great Appalachian system of the Blue Ridge Mountains—where we have peaks taller than any east of the Rockies—and that North Carolina will be better known on account of its good roads.

I want to tell you gentlemen a secret: We are very proud of Charlotte. Charlotte stands, as we believe, to the forefront of the towns and cities of North Carolina, and I believe that the good roads which have been constructed in this county have been one of the greatest factors in building up this city. I believe good roads are the earmarks of civilization, and I believe you gentlemen are doing a great work for North Carolina, in assembling here for the purpose of arousing everybody to the importance of constructing roads through our wonderful country.

North Carolina is a State that is so long that there are two points in it more distant from each other than North Carolina is from Canada, and our mountains are unknown in the North. I remember telling a gentleman in New York City once we had some of the highest peaks east of the Rockies, and he told me I was absolutely mistaken. I told him to refer to his encyclopedia. He did so, and said that I was right, and he had not known it. I do not believe that there would have been a Civil War if we had had good roads, because the two sections would have so mingled together that they would not have got together except in peace and

in the construction of good highways; and I am satisfied North Carolina was saved from the invasion of Sherman because the roads were so bad he could not get through.

Gentlemen, as Mayor of the city of Charlotte, I extend to you a most hearty welcome.

FOR THE GREATER CHARLOTTE CLUB.

HON. C. O. KUESTER, PRESIDENT.

Mr. President and Gentlemen of the Good Roads Association:—I will make a few announcements first, so that you will know where we are in the next few days. We never bother a convention during its sessions, to give entertainments; we leave all the time to the convention, and then, what time they can spare, we give to the entertainment of the guests.

You will be engaged here this morning and this afternoon, but as you have no night session, we will have a smoker at Lakewood Park tonight. All cars passing through the square, marked "Lakewood," will take you to that place. You can stay as long as you care to out there.

Tomorrow morning you come here for the second meeting, and then again tomorrow afternoon; then you adjourn, I suppose, about five o'clock. Then there will be cars to take you to ride over the county roads—first, to the new bridge over Sloan's Ferry—the longest and best concrete bridge in the South, at which point we will be met by 'Squire Falls and others, who will carry us around the county, and then we hope you will be so pleased with our county that you will spend the balance of your life in the City of Charlotte. (Applause.)

There are no more loyal people in all the world than the people of North Carolina. This is demonstrated by the fact that this morning you men are gathered together from all over the State of North Carolina, at the cost of your time and expense, to discuss good roads for the other fellow.

Enthusiastic people are always great people. Just what an enthusiastic man is, I do not know, but I should say he is a man who has dreamed himself wild, or gone crazy over imaginary things that will take place if everybody gets together. (I do not know whether that is a good explanation of it or not.) But it seems that you fellows have determined to have good roads in this grand old State of North Carolina, and, at the rate you are going now, we will have the start of all others, I think.

I could talk to you for three or four days on this subject, but I will call your attention to one man we have with us—'Squire Hilton, the best man who ever worked convict labor in North Carolina.

On behalf of the Greater Charlotte Club, which is composed of 850 strong business men, we bid you a hearty welcome to the City of Charlotte. We are never more happy in Charlotte than when entertaining the other fellow. The business of every man with a red badge on is to look out for your pleasure during the next two days; and if you do not see a red badge, why, the man with any other badge on will look after you.

We hope your stay will be one of pleasure and profit, and we offer to you this Greater Charlotte Club, its good will and support. Remember that we are right with out—heart, soul and everything that it takes to bring about these things for our great country. We are determined North Carolina shall lead all other States. North Carolina men will never be any larger than the State of North Carolina. We have to advance these ideas and the others will follow in behind.

We thank you for coming to Charlotte. We assure you of our appreciation, and we hope you will enjoy every minute of your time, and, after you have looked over our good roads and our city, and if you become dissatisfied with your home, then we extend you a most hearty welcome to come and make Charlotte your future residing place.

THE PRESIDENT: We have on the program, to deliver the address of welcome from Mecklenburg County, Hon. Wm. Long, but he is not very well this morning, and has asked Mr. C. C. Moore, a most excellent speaker, to deliver this address of welcome.

FOR MECKLENBURG COUNTY.

MR. C. C. MOORE, CLERK OF THE SUPERIOR COURT.

Mr. Chairman and Members of the Good Roads Association:—It seems that ever since I was a boy around this town (because I was raised in town and shook the dust off my feet and went to the country), whenever any fellow backed down, I had to do his work. Now the man who was to have addressed you just now is far the handsomest man in our county, and knows more about the good roads than any man in the county, unless it is D. P. Hutchison. He knows more about the good roads of our county, and he makes the best speech—only we cannot get him to speak. If you want anything at the chain gang, if you want a new road, or a new wagon, or anything that goes for new road improvement, 'Squire Long will speak—and sign a check, too.

When this live wire at my left came to me a few minutes ago and said he wanted me to take the place of Mr. Long, I wanted to run out, but I knew Mr. Kuester so well, that if I had run he would have overtaken me, because he makes me, and everybody else—and will make you—do just exactly what he wants us to do.

Now, in giving you a welcome to Mecklenburg County, I do it from the bottom of Mr. W. M. Long's heart—and from mine, too. (Laughter.) I do it, too, in this way: A man from Mecklenburg County took a trip through the Orient. He was invited to spend the night at some ruler's tent in that country of beautiful things and many wives. When he approached this ruler's tent he saw a beautiful horse tied outside, and he admired that beautiful horse, and the ruler said, "It is yours. It is yours." He went into the tent, and there was a handsome rug spread on the ground, in place of a board floor, and he stopped and did not want to put his feet down upon it, it was so beautiful, and his host said to him, "It is yours. It is yours." And so on. Everything that he admired, the ruler told him it was his, and the man began to wonder how he would get them back to the United States. Perhaps he would have to charter a vessel. By and by a string of some thirty or forty beautiful women came along, and of course he admired them, as all men do admire beautiful women, but the Sultan did not open his mouth. After they passed into the next room, some thirty or forty other females came walking along, and he asked, "What is that?" These last thirty or forty had passed their bloom of maidenhood and were not so beautiful as the others, and he was told by the Sultan, "They are yours; they are yours." Now, gentlemen, everything in Mecklenburg

County is yours, because 'Squire Long says so. You are to have it, and the way you are to have it is to ask for it. Don't be backward.

The way to have good roads is this: We once had, and still have, a Township Board for Charlotte Township. That board was a pliable kind of a gang that you could do something with, and I have been working on them for the past fifteen years. We were doing a little, now and then—not getting along very well. By and by this great Queen Charlotte spread her hoop-skirts around here and took my forest in, and that just settled the road business. We could not get a thing from the Board of County Commissioners, or a thing from the Board of Aldermen, except on Trade and Tryon Streets, so the next thing was, "Go to work yourself." I had a road leading from the public road to my dwelling house hollowed out. It was a sight to see. About three years ago my son took charge of things out home and got disgusted with that road. In the winter time it was hard to get from my house to the macadam, so James saw in a magazine a cut of this King Drag, and he made one. He took the mules, after a rain in the early morning, or any time after a rain, and would drag the roads. It is as smooth as this floor. All the terrible winter of last year we could pass over it. It was without a hole. So that just shows if a man living on a dirt road will build one of those drags (which he can build himself), and when the winter comes just put his team to it and drag it, you will be surprised what a good road you have, without going to the authorities of the county about it.

Looking over this crowd this morning, I was struck with one thing: I saw a man from Edgecombe County, that when I was in his county, he was doing something; another who was doing something in Pitt, and another in Johnston County.

Now, with a body of men like that, come together, in a cause like you have come together this morning, gentlemen, I feel satisfied that this Good Roads Convention, is going to do something that will mean something—not only for ourselves, but for those who come afterwards, and I give you a most hearty welcome to everything in Mecklenburg County—except our mothers-in-law, God bless them.

THE PRESIDENT: *Ladies and Gentlemen:*—I want to thank you for the hearty welcome to Charlotte, and I assure you we always feel at home in Mecklenburg County,—the "Mother of Good Roads."

I will ask Hon. W. C. Feimster of Catawba County to respond to the addresses of welcome in behalf of the Association.

Response in Behalf of the Association.

HON. W. C. FEIMSTER.

Mr. President, Ladies and Gentlemen:—This is an honor that has been forced upon me. You see from the program that another man was to have responded for the delegates. However, it is a great pleasure to be in Charlotte. It is a greater pleasure to be in Mecklenburg County, and it is the greatest pleasure to be entertained by the Greater Charlotte Club, especially that "and so forth," that my friend referred to, that would be at command of us after the cigars, tonight.

I hardly know the Mayor of this splendid city, and my heart is touched with the splendid welcome that you have extended to this Association and to these delegates.

I can only refer, in the few brief moments allotted to me, to some things that come to the mind—of the representative of a splendid city, in referring to the good roads of this great country. Speaking of the time when the mud road ran between two fence corners, and the air was balmy—made sweet by beautiful music of the birds, that are now giving way to the civilization and progress of the present, and my heart went out to Nature and to Nature's God, and refer to the great man of God here, who calls blessings upon our heads when we are here debating as to the material development and betterment of this great State.

Ladies and gentlemen, it is a great occasion and a great State. When we can meet in communion here to study the material progress of this State, and at the same time have the blessing of the Great God pronounced upon us by a man of God; it should give us courage to go on and upward to the splendid work that this great country must do, and wherever Charlotte's name is known—not only in North Carolina—and wherever the County of Mecklenburg is known—all over these United States—the Greater Charlotte Club is known, with its 850 stalwart men. It is a synonym of progress. It means something. It means much to your city and county, and for this great State that is coming to the front.

When we speak of not having opportunities that our sister States have had, and not having made the progress that they have made, I fling it in their teeth that North Carolina has made as much progress as any State in the Union, with the great drawbacks of '61. And, Mr. Mayor, and Mr. Kuester, and Mr. Moore, and Mr. Long, I bespeak the sentiment of every delegate in this audience when I say our heart o'erflows for the great welcome you have given us. We are glad that you have held out everything to us; and there is just one responsive chord that touched my heart that I want to refer to. Mr. Moore spoke of the mother-in-law. I want to say to this great audience that one of the most pleasant recollections of my life is a mother-in-law. (Applause.) There was never any distinction made between me and her own sons, and one of the greatest women, next to my mother, that ever lived was my mother-in-law. I say that for the good of the great women of the great State of North Carolina.

I am talking too long, but I want to say one thing: The Southern Power Company has gone into great, progressive movements in this great country, and they sent a man up my way to get rights-of-way, and he was not smooth enough and did not know the people well enough; and then they employed my friend over here—and what did he do? Went up there and put on one gallus, and went over my county among the farmers and posed as a farmer, and, my friends, they did not know it until he had all that the farmers had. (Applause.) The people did not know it until afterwards. One day a young farmer came to me and said, "I have been put upon," and showed me a contract, and I said, "Who got you to sign that?" He said, "A farmer from Mecklenburg County." I said, "A farmer from Mecklenburg County! Do you know who he is? Why, he is one of the greatest men, and one of the smoothest articles they have in Mecklenburg County." (Laughter.) And he had worked our folks.

You do have to overcome prejudices and sometimes ignorance. That is so, and that is what we are here today for. We are here for progress. We

must overcome prejudice in this work and in this movement for good roads, and this great enterprise that you have met here for; and sometimes we must overcome not only prejudice, but ignorance. You must educate the people—and that is what you are here for.

And I say again, I thank you, all of you, gentlemen, and thank the great enterprise you represent, for the splendid welcome that you have given us, and may you always prosper in everything you undertake for the upbuilding of Mecklenburg County, and for Charlotte, and for the good of the God that made us all.

THE PRESIDENT: At a meeting of the Executive Committee last night we passed a resolution limiting all speeches to twenty minutes, and all discussions to five minutes. I hope that we can keep well within this ruling.

Report of Secretary.

The Secretary of the Association, Dr. Joseph Hyde Pratt, then stated that the proceedings of the last annual convention were printed in *Southern Good Roads*, the official organ of the Association, copies of which had been mailed to all the members. A motion was carried that this report be accepted without reading at this meeting.

The Secretary stated that in connection with this convention a number of letters had been received from prominent people expressing regret at not being able to attend this convention, and these letters are incorporated in this report.

WASHINGTON, D. C., July 15, 1912.

Mr. Joseph Hyde Pratt, Chapel Hill, N. C.

MY DEAR MR. PRATT: I am in receipt today of your letter of the 12th instant, extending an invitation to attend the North Carolina Good Roads Association to be held in Charlotte on August the 1st and 2d. I write to thank you for your kind invitation and to assure you that it would give me great pleasure to be present if it was possible to do so, but I am satisfied that Congress will not have reached an adjournment by that time and the business here will demand my attention.

With kindest regards, I am,

Yours very truly,

(Signed)

O. W. UNDERWOOD,

Chairman of the Committee on Ways and Means
of the House of Representatives.

WASHINGTON, D. C., July 6, 1912.

Dr. Joseph Hyde Pratt, Chapel Hill, N. C.

MY DEAR DR. PRATT: Your very kind letter inviting me to attend the Annual Convention of the North Carolina Good Roads Association to be held in Charlotte on August 1 and 2 has been received. If Congress has adjourned by this time, and I am possibly able to be with you, I beg to assure you

that nothing would give me more pleasure. In ten days from now I will be able to say more definitely whether or not I can be with you.

With kindest wishes, I am,

Your friend,

(Signed)

E. Y. WEBB,

Member of the Committee on Patents of the House of Representatives.

ROXBORO, N. C., July 18, 1912.

Dr. Jos. Hyde Pratt, Secretary, Chapel Hill, N. C.

MY DEAR DOCTOR: I have yours of the 12th, inviting me to attend the Annual Convention of the North Carolina Good Roads Association to be held in Charlotte, August 1 and 2.

I note that you are anxious to have as many automobiles run into Charlotte on that occasion as possible.

I have so many engagements and so many things to look after for the next thirty days that I do not know that I can arrange to be with you. However, if possible, will do so. I will endeavor to get some of our friends who own automobiles and are interested in good roads to attend this convention.

I assure you that I am in sympathy with this movement, looking to the improvement of country roads, and trust that at no distant day my own county may take some further move in this direction.

With best wishes, I beg to remain,

Yours very truly,

(Signed)

J. A. LONG,

President of the Roxboro Cotton Mills.

WADESBORO, N. C., July 17, 1912.

Dr. Joseph Hyde Pratt, Chapel Hill, N. C.

MY DEAR DR. PRATT: I wish to thank you most heartily for your favor of the 15th instant, advising me of the meeting of the North Carolina Good Roads Association, which meets in Charlotte August 1 and 2, inviting me to be present and take part in the proceedings of the meeting. I am certainly sorry that previous engagements will prevent my being present, but I wish to assure you that there is nothing in which I am more interested than the question of good roads, because I am thoroughly convinced that not until our State fully realizes the conditions and bestirs itself in behalf of better highways, will we have accomplished that which a progressive people should desire.

Assuring you of my hearty good wishes for better roads in the State, I am,

Yours very truly,

(Signed)

WALTER E. BROCK,

Attorney and Counsellor at Law.

RALEIGH, N. C., July 23, 1912.

Dr. Joseph Hyde Pratt, Chapel Hill, N. C.

DEAR DR. PRATT: I wish I could be with you at Charlotte, but, unfortunately, I have an important engagement for a conference with the County Board of Education of Yancey County, at Burnsville, on August 2, which can not be postponed now, and which will render it impossible for me to get to Charlotte.

You know that I am in hearty sympathy with your good roads movement, and that you can count on my active coöperation. It is a genuine disappointment to me to be compelled to miss the Convention again this year.

With best wishes,

Very truly yours,

(Signed)

J. Y. JOYNER,

Superintendent of Public Instruction.

KNOXVILLE, Tenn., July 2, 1912.

Dr. Joseph Hyde Pratt, Chapel Hill, N. C.

DEAR DR. PRATT: Your letter of June 27 has just reached me, having been forwarded from Washington. I appreciate greatly your invitation to be present and make an address at the annual convention of the North Carolina Good Roads Association, which meets in Charlotte, August 1 and 2. I wish it were possible for me to accept it, but I have a long standing engagement at Columbia University for July 31, August 1 and 2. It will, therefore, be impossible for me to come to North Carolina.

Next to education, I am interested in the good roads movement, and there is much to be said on the subject of the relation of good roads to the improvement of schools, especially in the country. I would like to be present and say something of it to my North Carolina friends.

Yours very truly,

(Signed)

P. P. CLAXTON,

United States Commissioner of Education.

ASHEBORO, N. C., July 22, 1912.

Dr. Jos. Hyde Pratt, Chapel Hill, N. C.

DEAR SIR: Referring to yours of the 19th, requesting that I be present at your meeting in Charlotte on the 1st and 2d:

I beg to say that I do not think I will be able to attend, as I have arranged to go to the western part of the State with my family for a few days on the 1st. Sorry I cannot be with you.

As for giving you a talk along this line: I will delegate some one who expects to go from here to do this, and will have him tell of the experience we are having in our county.

I will say for your information that work has begun on the 14-mile stretch of road, contract having been let to Mr. Leonard Tufts. We are going to try to contract fourteen miles more, and this will give a stretch over one line between the Guilford County line and the Montgomery County line. Of course, this is but a few miles, comparatively speaking, but it will create enthusiasm, and we hope to have a better way of raising money later than we now have.

I trust you will have a very profitable meeting, and with best wishes,

Yours very truly,

(Signed)

D. B. MCCRARY,

*Chairman of the Executive Committee
of the Randolph County Good Roads Association.*

RALEIGH, N. C., July 18, 1912.

Dr. Joseph Hyde Pratt, Chapel Hill, N. C.

DEAR DR. PRATT: Your circular letter of July 16 has just been received. I have already seen the notice of this proposed meeting and regret that I shall be unable to attend, as I shall not be in the State on that date.

Since the meeting of the Wake County Good Roads Association, I have talked with several about conditions, and I had wished to write something for the paper on the subject, but have not had time.

I examined again carefully the bill for the Wake County roads, and it might be of some use to mention to you briefly some of the points that occur to me.

1. People will not vote for bonds unless they are sure the money will be used honestly and fairly, with no concealed jobs. The personnel of the committee naming the bill seems to me to answer that objection.

2. The average voter gets hysterical when a bond issue is mentioned. This is a matter of education which you personally are largely carrying out by reiteration. The present patch-work method would not give good roads in a thousand years. I venture to suggest another point in this connection that all big business is built up not by cash transactions a little each year, but by a bond issue or stock company to do the whole at once. Even most dwelling houses are erected by this method, the owner going into debt for a certain amount of the necessary expense. The bigger the business, the more surely is the bond method employed.

Some have questioned the accuracy of your calculations as to the automatic retirement of these bonds. I think it would be well to show that, even if the rate of interest should change, the payment would be none the less sure, but only postponed for a certain time. I believe it would be well to emphasize the point of having the bonds run over various periods so that they can be retired as fast as the cash comes in.

3. Some provisions should be made for a maintenance fund if the interest of the bonds takes most of the regular road tax money.

4. The most important difficulty, which has a certain element of sense in it, is that no man feels like voting bonds to give good roads, if he is not going to get his share of the benefit. At the meeting in Raleigh you said that Wake County had twenty-five hundred miles of road and did not need so many, and recommended a bond issue for \$500,000. I was speaking to Mr. White of Franklinton, who spoke at that meeting, the other day, and he said he believed it would take a million dollars to provide Wake County with good roads. The amount named in the bill is \$300,000, which to my mind is obviously too little. When he spoke in Raleigh he emphasized the importance of not making the movement for good roads, unless *everybody* would get the good roads, and that they would be built *at once*. I think this point should be studied out for each good road undertaking, so that in voting for a bond issue every single voter would feel that he was sure that he could get a good road at his front door, or at least at the end of his short side road.

Of course, I am taking for granted the importance of expert engineers and supervisors to lay out, construct and keep in repair the roads building.

I am not supposing that I am saying anything unknown to you in what I have written, but I think it might be of assistance in helping you to read the minds of your audience.

I have a suggestion to make of a different nature. It is that a short bulletin on good roads, answering the popular objections and giving some of the main points showing the benefits of good roads, with reference to other bulletins obtainable by mail, and to be put into the hands of every child attending school this next fall would have a great effect. We did that with our program for the Wake County meeting, with the coöperation of the

school superintendent of the county and of the Raleigh township. I believe that Mr. Joyner and all school authorities would take this matter up. Practically it would be only the expense of printing and the postage. I had a separate package sent to every school teacher, with orders in the name of the Superintendent printed on the outside of the package to distribute one to each scholar, and have them take them home. If you could get some people to meet this expense I believe it would do much good.

With best wishes for your meeting, and again regretting by inability to be present, believe me,

Yours very sincerely,

(Signed)

GEORGE W. LAY,
Rector of Saint Mary's School.

The Secretary then stated that during the past year our Association had sustained a great loss in the death of H. C. Dockery, of Richmond County; W. I. Everett, of Richmond County, and A. B. Lukens, of Currituck County—all being good roads advocates and public spirited citizens.

Report of Treasurer.

In the absence of the Treasurer, Mr. Joseph G. Brown, of Raleigh, Mr. Pratt read a statement submitted by Mr. Brown, as follows:

To the North Carolina Good Roads Association.

GENTLEMEN: I beg to submit the following report of receipts and disbursements since June 1, 1911:

June 1, 1911—Balance on hand.....	\$ 68.44
Receipts from all sources.....	535.80
	<hr/>
Total	\$604.24
July 27, 1912—Disbursements as per vouchers.....	\$565.20
	<hr/>
Balance on hand.....	\$ 39.04

Very respectfully,

(Signed)

JOS. G. BROWN, *Treasurer.*

In connection with this statement Mr. Pratt made the following comments:

THE SECRETARY: I might state that the amount received—\$535—represents solicitations on the part of the Secretary for the work of the Association. Part of it is dues, and part collections by private subscriptions.

It might be well, at this point, to explain one source of revenue of the Association, through County Associations, and that is that the one dollar which is supposed to represent the dues of the North Carolina Good

Roads Association, also represents the dues of the County Good Roads Association, and also represents a year's subscription to *Southern Good Roads*. It has been the idea of the Association that it was not the amount of money that every one gave to the work, but that it was better that every one could align himself with the Association, by giving a small amount, because he took more interest in the Association than if he simply stated he was interested in good roads, and therefore wished to be a member of the Association. Of the dollar, 25 cents is retained by the County Association, and 75 cents goes to the State Association, out of which is paid a subscription to *Southern Good Roads*.

State Aid for Good Roads.

BY JOSEPH HYDE PRATT, STATE GEOLOGIST.

I just want to start the discussion in regard to one form of State aid—the Engineering Assistance to Counties. At the 1911 General Assembly a bill was introduced by Mr. Boyden, of Rowan County, asking for an appropriation sufficient to enable the North Carolina Geological and Economic Survey to give to the various counties of North Carolina the assistance not only that they needed, but that they were asking for and demanding of the Survey, in connection with the location and maintenance of their roads. That bill was favorably reported by the committees in the Senate, and was passed by the Senate by a good majority. It went over to the House; went through the various committees; was put on the calendar; and those advocating that bill stated that they had a majority of the House who were pledged to the bill. One night, about five minutes to twelve o'clock, that bill was taken off the calendar by one of the members of the Calendar Committee, and moved to be tabled. There were only a few of the members of the House present at that session, as it was understood that nothing but local measures were to come up, and the bill was tabled. I presume very few there knew anything in regard to what the bill was about. The next morning when the Good Roads men of the House found that the bill had been tabled—one man, especially, the member from Buncombe County—made a very strong plea that the bill be taken off the table and that the members of the House be allowed to register their vote either for or against the bill. Immediately, the one who had had it tabled the night before moved that that resolution be tabled; and you know, in case of a bill on the table it takes two-thirds to get it off, and as the Good Roads men in the House did not have the two-thirds, the bill was tabled.

It was the opinion of those advocating the bill in the House that if it had come to a vote, the bill would have been passed and that the counties would have been able to receive adequate engineering assistance, instead of having an engineering assistance fund of simply \$5,000 a year to spread out over 100 counties in North Carolina. Fortunately, some of the counties have not needed road engineering assistance; some have thought they have not needed it and have not asked for it; but a great many of the counties have asked for it, and it has been absolutely impossible to give to these counties the engineering assistance that they

have wanted in regard to the construction, location, and maintenance of their roads.

One of the best signs regarding the spread of good roads sentiment in North Carolina is shown in the numerous requests that are coming in to the Geological Survey office for engineering assistance: "Please send an engineer into this county, to assist us in locating such and such a road." "Please assist us in finding out what is the best road to build." "Come in and show us how to build a sand-clay road, or a gravel road." "What can we do to better our roads?"

The sentiment for good roads is also shown in the number of counties that are now permanently employing competent road engineers to look after their road work, and we are now receiving requests to recommend road engineers to the county to take charge of that county road work.

But it seems to me if there is any way in which the State can, at comparatively little cost, assist the counties in their road work, it is by giving to them this engineering assistance in the location, construction, and maintenance of their roads.

In connection with the statistics that we collect at the Survey office regarding the amount of money and labor that are spent each year on the roads of North Carolina, a very conservative estimate shows that at least \$500,000 a year is absolutely wasted in connection with road work.

Now, I believe at a cost of less than one-tenth of that amount, we can supply such aid to the counties of North Carolina that this great loss can be saved. Would not that be a good investment for the State? The State does not get the money back directly, but the counties get it, and everything we save to a county we save to the State.

That is one form of State aid, and, to my mind, the most important form of State aid that we need at the present time.

Questions do come up regarding other forms of State aid, but I do not care what form of aid North Carolina renders her counties, it will be necessary to have a plan of coöperation by which the roads built are constructed in accordance with specifications worked out by one of the State's competent road engineers. And so it comes back to the question of engineering assistance as to the first and most needed form of State aid.

I think any one connected with any form of road work in any county—as, for instance, the Commissioners of Mecklenburg County—will agree that the county has made very grievous mistakes in connection with its road work; and one of the most common mistakes has been the lack of providing means for the maintenance or up-keep of the road after it is once built. You can build the finest kind of road, but it is absolutely necessary to make provision at once to maintain that road, in order to keep it in first-class condition, and the actual cost per year of doing that is very little if such a system of maintenance is begun immediately after the road is built and kept up. But if you let a road go for from one to six years without maintenance you will have to practically build the road over anew in order to get a first-class road again; and there is not a county in North Carolina which has not had such an experience in its road building.

They have then felt the need of calling in some one to assist them with their road problems, and those problems ought to have been solved by the State itself, through a Highway Department.

I am in hopes that this Association, and this State Convention, will

take some strong action in the form of resolutions regarding this particular form of State aid to counties, because, as I said in the beginning, it is the form of State aid that is going to do the most good. It is going to bring the quickest returns, and can be accomplished for a very small amount.

Appointment of Committees.

The President then announced that he would appoint the committees, saying: "I consider the Resolutions Committee the most important one to be appointed at this time. Heretofore the chair has been appointing that committee, but I am going to ask the representatives from the various counties to get together and suggest a man from each county represented for that committee. Then this committee can appoint a sub-committee to draft the resolutions and refer them to the balance of the committee.

"I will appoint the following committees:"

PUBLICITY COMMITTEE.

R. M. Phillips, Chairman, of Guilford County.
Wade H. Harris, of Mecklenburg County.
W. C. Dowd, of Mecklenburg County.

COMMITTEE ON NOMINATIONS AND NEXT MEETING PLACE.

Dr. C. P. Ambler, Chairman, of Buncombe County.
W. C. Hammer, of Randolph County.
W. C. Feimster, of Catawba County.
P. B. Beard, of Rowan County.
D. A. McDonald, of Moore County.

MEMBERSHIP COMMITTEE.

G. E. French, Chairman, of Iredell County.
W. L. Spoon, of Forsyth County.
A. P. Gilbert, of Durham County.

The following Resolutions Committee was recommended by the members from the various counties:

RESOLUTIONS COMMITTEE.

Joseph Hyde Pratt, Chairman, of Orange County.
Martin Willard, of New Hanover County.
C. M. Miller, of Rowan County.
R. L. Haymore, of Surry County.
M. W. Teachey, of Duplin County.
W. C. Feimster, of Catawba County.
N. B. Mills, of Iredell County.
Shepherd Strudwick, of Orange County.
W. A. Rudisill, of Lincoln County.

J. D. Bivins, of Stanly County.
R. R. Cotten, of Pitt County.
Geo. T. Leach, of Beaufort County.
M. W. Loftin, of Wayne County.
Ira B. Mullis, of Robeson County.
C. P. Ambler, of Buncombe County.
Martin Kellogg, of Gates County.
Frank Parker, of Sampson County.
W. C. Riddick, of Wake County.
H. W. Horton, of Wilkes County.
Frank S. Lambeth, of Davidson County.
F. M. Shannonhouse, of Mecklenburg County.
C. M. Wilson, of Johnston County.
R. L. May, of Jones County.
Glaucus A. Bryant, of Wilson County.
J. H. Miller, of Forsyth County.
Frank McAulay, of Montgomery County.
T. L. Caudle, of Anson County.
J. W. Martin, of Edgecombe County.
W. B. Rose, of Nash County.
Hannibal Shearin, of Halifax County.
J. Van Lindley, of Guilford County.
Frank D. Jones, of Chatham County.
W. F. Pryor, of Henderson County.
N. Glenn Williams, of Yadkin County.
W. C. Hammer, of Randolph County.
J. P. Chandler, of Gaston County.
N. C. Hughes, Jr., of Vance County.
R. P. Coble, of Granville County.
G. W. Huntlet, of Anson County.

DISCUSSION.

Mr. G. E. French, of Iredell County: I have just listened, with much interest, to the foregoing address. I realize that that is a most vital and important question. I remember only last year (and you remember you were with me, on a trip to Alexander County), when we prayed, we threatened, when we expostulated, and did everything that could be done to awaken a people that needed awakening, and needed it bad. I had some correspondence, and endeavored to push the matter up there as much as I could. Afterwards they called on me to try and assist them in getting an engineer to come there and aid them in laying out a road. What we people of Iredell were anxious for them to do, was to complete a road from the Iredell line—because we are building

good roads in Iredell, and are going to keep building them, too. But we want our sister counties to join us. What we wanted to do was to build a highway through Alexander County extending from the Caldwell line to the Iredell line. You remember it was stated that Iredell people would carry the road to Blowing Rock, and there was this little link through Alexander County needed to complete a splendid highway. They have a well-located road there; nothing to do but to spend a few hundred dollars for surfacing. If those people would get together, in two days they could build a first-class dirt road. We awakened little good road sentiment up there. A few of them got a little interested in the matter, and it seemed that in one township they had some special act that enabled them to get some money by a tax levy; but the thing fell down after Dr. Pratt wrote us that he was unable to do anything in the way of furnishing an engineer, as there was no engineer available. In that particular instance, I believe that if engineering aid had been furnished a road entirely through the county from the Iredell line to the Caldwell County line would have been completed; but they could not get the State aid at the time they wanted it, and they have done practically nothing. Now they have golden opportunities there of building a beautiful road to open up that fine mountain section.

I just merely mention this as a little instance where State engineering aid would have been the means of getting a highway through a county, which is now entirely without such a road, which would have enabled them to connect with the adjoining counties of Iredell and Caldwell. Just a little expenditure would have carried that thing through and kept up the enthusiasm that we tried to awaken up there that day when they got themselves into a fighting mood over it, and tried to get State aid, but they did not get it and the matter collapsed. I would heartily favor some form of State aid, because the location of a road is permanent, and the only way to lay it out for eternity is by a competent road engineer. We have a competent road engineer for Iredell County, and no road is located unless he does it, and that is the only sensible way to do it.

Mr. Pratt: At the time we got this request for engineering assistance from Alexander County, there were seven applications ahead of that county, urging us to send some one to their county or township to help in the location of a road, and we simply had to put that county in the order of its application, and it was impossible to fill that for two or three months, when enthusiasm had died out and it was too late; whereas, if we could have given them aid at the time it was applied for, they could have accomplished what they wished and built a good road through the county.

Dr. C. P. Ambler, of Buncombe County: Just one word in regard

to State Aid. In the past, many of the county roads were originally opened on private property, without any engineering assistance whatever in their location, and many of the counties today are opening roads as county roads which have not been properly located. It can readily be seen how important is the proper location of a road, when it is realized that such a road is eventually to become a county road, then, though it may run through a private estate or through the backwoods, it is only a question of time when that road will be traversed more and more frequently as the population of the country increases and outside travel becomes directed that way. For this reason it can be seen that every citizen in the State has an interest in the location of that road, for there is a probability of each citizen of the State traveling that road at some time or another. I do not know just how the matter should be worked out, but I believe the people of this county have an interest in the roads of Buncombe County; and if we are building a road in Buncombe county the citizens of Mecklenburg ought to have some right to say what the grade of that road is to be and that it is properly located if it is to be opened up as a State road. I believe that this association should work out some plan by which counties or individuals should not be permitted to open up roads unless they have the proper location and grade. If the right grade is obtained in the beginning, then as the road is improved by surfacing materials there is a better chance of getting a good road which every one can use.

Dr. E. F. Greene, of Montgomery County: Would it be a good thing for this association to go on record by a resolution in regard to this thing?

THE PRESIDENT: We want each county to name a member of the Resolutions Committee, and we want to prepare resolutions here today to go before the people of the State, and especially to go before the next Legislature, to get proper legislation.

Use of State Convicts on the Public Roads.

BY HON. E. R. PRESTON, OF CHARLOTTE.

Mr. President:—I am not on this bill of fare. You know in the hotels and restaurants, when an extra dish is put in, it is not always good. I hope, though, that I will not prove entirely unpalatable.

My distinguished friend, Col. Kirkpatrick, 'phoned to me yesterday and said that he was called away, and as he is very much interested in this topic—and, by the way, he is a progressive in the real sense of the word, as opposed to the political sense, as being a man who is always trying to do something for his community and his State—he asked me to say something on this subject.

He has been interested for some time in this question of a North and South, and East and West highway, which has been taken up by your

Association, and wanted to speak about that. I am not competent to speak on that question, and therefore pass it over, with the regret that he is not here to speak for himself.

It is not generally known, but we have had two declarations of independence in Mecklenburg County. One is well known. On May 20th, 1775, we declared ourselves independent of Great Britain. On June 1, 1885, we declared ourselves independent of American mud. (Applause.) One of the men who took the lead in this great reform is with us now. Another one, who, if it were not for the feeling which I have in using the word "old," I would say was the "Grand Old Man" of Mecklenburg County—Capt. S. B. Alexander, who would be here with us today, were it not for a previous engagement which has taken him to another part of the county. He asked me to say for him that he was heart and soul in this movement. So far as we can find, Capt. S. B. Alexander is the first man in the United States who ever had a law passed similar to the one we now have in North Carolina, for the working of convict labor upon the roads in the various counties of North Carolina. All credit to him. All credit to my friend, whom I am going to introduce to you, to make the speech that Col. Kirkpatrick asked me to make. I am going to ask my friend, 'Squire S. H. Hilton, to make a speech. The 'Squire is a man who, at sixteen, enlisted in the Army of the Confederacy. He made a trusted scout to General Wade Hampton, having won his spurs at the Battle of Seven Pines by capturing four live men. He was a friend of Robert E. Lee. He, though not a lawyer, has had more cases than any lawyer in Mecklenburg County, because he is our leading magistrate, and was the favorite friend of our great North Carolina editor, J. P. Caldwell, and through Mr. Caldwell he has become known to most of the readers of the *Observer*.

I am going to introduce you to the daddy rabbit of convict labor on roads in the United States, because he was on the County Board of Commissioners that laid the first foot of road on the Providence road—so far as we can find out—that was ever laid.

Mr. President, and ladies and gentlemen, I present to you the Hon. S. H. Hilton, who will make my speech which I was to make for Col. Kirkpatrick.

'SQUIRE S. H. HILTON, OF CHARLOTTE.

I did not come up here expecting to make a speech. I was only notified a few moments ago, so I know nothing to say.

As far as road work is concerned, I started in this county. When I was a boy, in 1850, I rode into the City of Charlotte with my father, and I came up what is known as Flag Branch, two and a half miles from here, on the Lawyers' road. There had been a little snow on the ground. My horse, which was a pony, picked up the snow. We came to Flag Branch, and coming up the hill the road was so bad I thought we could not get to town. That was in 1850. I said to my father, "I think the time will come when we can get over this road," not knowing I would ever have anything to do with it.

In 1885 I was elected a member of the Board of County Commissioners. I had an enterprise out here—a mill—and could not get into town at all with my flour and meal, and I went to work with the Board of County Commissioners to get a road. They said that they had no funds. I advocated it for some time, and in 1885 I was elected a member of the Board

of Commissioners. We had three wheelbarrows and a pick and a shovel, and that afternoon I went to see my man at work. He had one little negro tied to a bush. He had refused to work, and the man was in the ditch with the others. I stopped and looked over the work, and said, "This is the poorest prospect for a road I have ever seen, but I am determined to overcome it." Then I got the fellow who had refused to work to go to work, and he was working well when I left. Shortly after that we increased our force from three to seventeen. I was not satisfied with that, but the winter time came on. The farmers agreed to give me the rock from their fields. I employed men and hired teams from the farmers to haul the rock. We hauled the rock and threw it in the road where the mud was so deep the teams could not get through. Then we got hammers and began to beat the rocks up, and we made a road which was fairly good. We thought it was fine at that time. We put down a few hundred yards, and there was a demand to move to some other place. The county agreed to let us have \$900 to pay for this crusher, and we began to put down rocks, and tried to put down 40 yards a day. A cubic yard of rock will crush 6 inches deep, 12 feet wide, — lineal yards. We used the township fund then. I prevailed on the township to give us what they could to meet the expenses. We commenced with nothing, and we kept building until we have the finest roads in the State now, but we have nothing to keep the roads up with, now that they are built. You can start out and run for twenty-two miles, to the Catawba river, and come back on another road, without going off the macadam. We have cut down the hills, and, as I said, at this road at Flag Branch, we made the grade. We had no engineer and we have today the best roads in the State.

A 2-mule team will haul ten bales of cotton over our roads. We made new locations wherever necessary. West of the city, going out toward Capt. Alexander's place, we have a fill across the creek six or seven hundred feet. It is a long fill. The street, of course, now passes under that road. That is a fine road, where, before, you would catch the sides of your buggy and shut your eyes and not know where you were going to land. Today you can go over that, summer or winter, and pull any load you want to over that road.

So far as working the convicts is concerned, I bought the first suit we ever had, and got awning goods and made suits afterwards. We got the regular woolen suits, and then we started with tents; placed them wherever we could; sometimes in the jail. Now the wagon rolls along, and whenever you get to the place you want to stop, you are ready to go to work.

I went off the board. J. H. Weddington succeeded me, and they have done good work in Mecklenburg County. I have not kept up with that work lately, because it was not necessary for me to. We have good men in charge of it. We have good roads everywhere. We started from nothing. And you can all have good roads if you want them. If you get your heads together you can have good roads. We started without money and without convicts, and you could do what we did. I don't know whether you are all like us. You have not the advantages that we have. As Brother Preston said, as we declared our independence from Great Britain, so we declared our independence from the mud, and we are going to stand ahead of the old State, and all we want you to do is to try to keep up with us.

DISCUSSION.

Mr. G. E. French, of Iredell County: The question of convicts on the public roads of North Carolina is a very important one, as I realize. I suppose there must be about 2,000 State convicts in North Carolina now employed on the public roads. They are used, though, where the counties have adopted the chain gang system, and I think 55 or 60 counties in the State are now working chain gangs on the public roads. I am heartily in sympathy with that. I believe in it. In my county—Iredell—we have been building roads for years. We had to build them rather slowly with convict labor, but last year we got a hump on ourselves. We got more progressive—not any more so than any county in North Carolina ought to be, because a bond issue can carry in North Carolina, and in every township, if it is put before the people, and the bill drawn so as to make no hardship.

We are still working a chain gang in Iredell County, and we have about seven other road gangs that work also, spending our \$400,000, making modern and good roads, laid out by a capable engineer.

But the question of taking convicts out of the State prison and off the State farm is a pretty serious proposition. Of course we all have different opinions on that, although I am in favor of working them by counties, as we are doing now.

I happened to meet here today the very capable Superintendent of the State Prison. He has given North Carolina a splendid administration. His record speaks for itself. You know the State Prison is not only self-supporting, but highly profitable to the State, and his record there speaks, without my saying anything; but he is entirely capable of discussing all these phases of convict labor on public roads, and it is a matter of experience with him, not a theory at all. He knows what he is talking about. He is equipped with long experience as a farmer, and also as the able administrator of the State's prison. I ask, Mr. President, that you call on the Superintendent of the State Prison to make a talk on this subject.

Dr. J. M. Templeton, of Wake County: I do not know whether convict labor would pay on public roads or not. I was in hopes some farmer in this meeting would stand up and give the farmer's view of this question—whether convict labor pays in building good roads or not. We know the question with the farmer. It is a question whether convict labor should come in competition with honest labor, and speaking, on the part of the State without regard to whether they could be utilized or not, I wish to say there is a sentiment among them that will make it necessary for the State of North Carolina to take them off the farms and put them on the public roads, and I hope that this organization will find that they can utilize them on the public highways.

*Prof. W. C. Riddick, of the A. and M. College: Mr. President:—*The Superintendent of the State Prison is here, and it seems to me this discussion of State convicts on the public roads is really a broad matter, and I believe if we would call on Capt. Laughinghouse he would give us a few facts on this question. I think the State has really not much complaint to make, because about all the convicts capable of working on the public roads are doing that now, and I think the greatest trouble about that is we are, perhaps, depending too much on them. They would be a mere drop in the bucket, when it comes to working on the roads, and while the convicts ought to work on the roads, it would not do for the various counties to depend upon them to do their road work entirely. I think if the Superintendent would make a statement in regard to the facts, we would find that out.

Captain Laughinghouse is not a delegate to this convention. I would request that the chair ask him to make a speech.

THE PRESIDENT: We would be pleased to hear from Capt. Laughinghouse.

CAPT. J. J. LAUGHINGHOUSE, SUPERINTENDENT OF THE STATE'S PRISON.

*Mr. President and Gentlemen:—*We have in the State of North Carolina between 2,500 and 3,000 convicts. All of these today, except about 750, are working upon the public roads in the respective counties where they have been convicted.

Now there are very few men in this audience who are paying a bigger road tax than I am. I said to my old friend, Bob Cotten, that we had probably paid more road tax than any other men in the State, as we cultivate large farms and have to haul the produce such a long way to market.

No man in North Carolina feels more keenly than I do the importance of having every able-bodied convict that can be worked judiciously, wisely and economically upon the public roads. About 2,000 of these convicts are at work upon the roads of the respective counties in which they are convicted. These are young, strong, able-bodied men. You know your rule here in this county. You try 25 or 30 men here for crimes at about every term of the criminal court, and every strong, able-bodied man, whose sentence is less than ten years—unless it is murder, arson, and one or two other crimes—is sent to the public roads of the county. But if you have an old man, if you have a one-legged man, or a one-armed man, or a weakling from some affliction, you will see the sheriff step up to the solicitor and say, "Look here, we cannot work this fellow on our county roads. He is just disabled from disease; we wish you would send him to the penitentiary. It is not exactly in order, but we cannot use him on our public roads." He goes to the penitentiary.

We have 450 weaklings in the penitentiary that your courts have rejected and say they are unfit for public road service. Well, I can tell you they are. On one of the State farms we have 12 one-legged and 7 one-armed (or vice versa) men, and we have 15 men on that same farm past 70 years of age. Now you have a population of convicts in your State numbering about 450 out of your 2,500 or 3,000, (and you can readily understand that that is a

small per cent., considering the prevalence of disease among the negro race, and three-fourths of the convicts are negroes) that are sent to the State farm.

Then there is another class of convicts—the long-term and life-term men. It is for you to decide whether it is wisdom and economy to take that class of men and mix them up with three-months and six-months men, guilty of misdemeanors. I do not conscientiously believe it the part of wisdom to do so. We have those 300 men opening up the road across the Blue Ridge from Statesville to Mt. Airy, and some building a line for the Coast Line, at another place. But, having had some little experience as a Confederate soldier, and so on, I adopted an entirely new theory when I took charge of the penitentiary. I found many of those men making escapes, and there was a great cry over the State about it, and some contended they ought to be confined entirely inside the walls of the penitentiary. I found about as many men escaping from the Central Prison as on the public roads. So I discarded all the old guns and bought a number of the best Remington guns that could be procured. We adopted a rule that no guard should be employed who was not a good shot, and another rule that every man who let a prisoner escape was immediately discharged; and, while we believe in every kindness towards the convicts, still we did not believe it right to the people on the outside that these men should be allowed to escape. Some men had been sent to be electrocuted and their sentence was commuted to life imprisonment. We think those people are dangerous to the people at large and ought to be kept safe. We have lost forty-two men in three years, while, under the old system, they lost about forty-one a year.

These forty-two were not bad men, as most of the escapes have been the trustees on State farms.

It is for you to say whether it is wise to take these 300 of the worst criminals in the State of North Carolina and make road convicts of them.

I want to say to you that it is my experience that when you mix up long-term men—(and, mind you, it will only give three to the county, 100 counties in the State)—with the short-term men, they will get to the woods within 10 to 15 steps. They have something at stake; they make a dash for liberty, and, let me tell you, I would make the dash, too, if I were in for thirty years, when I got near the woods, especially when I knew I was guarded by men without experience—just picked up anywhere.

I have thought a great deal about this good roads movement, and felt an interest in it from the very beginning because I lived 15 miles from market, and with a great deal of produce to haul to market. I have always advocated it and would willingly subscribe \$500 to make a good sand road from Greenville to my farm—15 miles. But I think you people ought to understand this proposition. As it is now, there does not a penny come out of your pocket for the keep of the penitentiary. On the contrary, during 1909-10 there was over \$100,000 paid into the State Treasury. (Applause.) The State owns the best farm in the State. It only cost \$65,000. It was run down and in bad shape, and too much for one man to operate, and they got it at about one-tenth of its cost, and it is really worth about \$1,000,000. Any good, practical farmer can take it and pay an interest to the State of North Carolina upon a million dollars, with absolute safety. I have paid an interest on nearly two millions.

There are many things you have to take into consideration in regard to this convict question. I have been studying it more closely of late years

than ever before, because it has come into my line, so to speak. We have a camp in Iredell County now, because it seems to be the most progressive county in the State in the building of public roads. Iredell has appropriated \$400,000. We have a camp of convicts building a railroad up there, and they accomplish so much more than any other camp in the State. In fact, doing double the work, because it is managed by men who know how to manage convicts, and how to have work done. It has caused me, while going up there, to stop to spend two or three days, and, with the leading men of the county, go over the county and see the work that is going on.

I was delighted to hear my friend make the statement that he did, because I saw in Iredell County twelve men and twenty mules, with improved road machinery, doing more than you can do with any 100 convicts this side of Glory. Now, if you can take that number of men and mules, with improved machinery, isn't it a farce to talk about 100 men to do that sort of work, when you have to be out of considerable expense for guards?

I would like to see every able-bodied convict that can be handled judiciously and economically on the public roads put there, but if you cannot handle him economically, let him stay somewhere else. You have 2,000 now on the public roads, and you can not afford to take the 450 old men and do away with the property that is worth a million dollars to you. That is bringing you in better interest than any bonds you have got. You cannot afford to do away with that, and place all of those old men in the Central Prison and cost you \$100 to \$150 a year to take care of them, each, and I do not believe the wise men of North Carolina will agree to it.

We have men here whom I would like to hear express themselves. I have seen them at the Legislature. They have seen the situation for themselves. They admitted to me that they had not the faintest conception of conditions until they saw these men, who are weaklings, and saw the splendid farm, raising 1,600 bales of cotton off 1,500 acres, and many bushels of peanuts and corn. To me it is like a fellow out in mid-ocean and throwing out a glass of water and saying, "I am going to have a big tide, because I throw this glass of water out," when you think of the raising of this cotton and other stuff in competition with free labor.

I would like to see this body appoint a committee of practical men, sensible business men, by whom this proposition can be worked out quietly.

I am glad to give you these facts in regard to the penitentiary, because, if the system increases like it has for the last few years, it will be only a place for the decrepits. We now have 450 weaklings.

I am talking from experience. The thing is very definite. It is quite different from what it was when I took charge of it, and I see it from a different standpoint, because I did not understand it in the beginning any more than you probably do.

DISCUSSION.

Mr. D. P. Hutchinson, of Mecklenburg County: I agree with you entirely about the work of the long-term and life men. Why can't that gang work upon the county roads and public roads as well as work upon the farm? Let the county come in and pay the State for the labor, and then the State take county bonds in payment thereof, if they haven't the money.

Capt. Laughinghouse: They can do that. But you must not put those men under the control of inexperienced officials.

Mr. Hutchinson: My idea is to let them be worked by State officers under an organization similar to that on the farm. There are counties who would gladly take this labor. Iredell would have employed every convict on her roads; Mecklenburg would have taken a part, and the other counties, also. Let each county in turn apply for this labor. Let the machinery be owned by the State, if necessary; but your long-term and life men, let them be worked entirely under the penitentiary authorities.

Capt. Laughinghouse: I would be bound to differ with you there, because I have talked with the Iredell people. They say they do not think it practical to work them, because the guard force will amount to more than the men. They are thinking now as to whether they will not start a farm in Iredell County to maintain their county convicts upon it, because they have realized fully that with a few good men, to whom they have to pay probably \$1.25 per day, that they can do more work with improved machinery than they can with convicts. The State boards, feeds and guards, and gets about \$1 per day, after guarding and feeding them. The county can hire men for \$1.25, in many instances.

Mr. Hutchinson: I am paying \$1.25 per day for labor that I used to get for 60c, and get one-half the work I used to get. The convicts are out there, and when we say for them to go, they go. You see the picks go up and down regularly; but you get the free labor and you don't make them work; you get nothing.

Capt. Laughinhouse: I do not hesitate to tell you that one good, well-regulated convict is worth two or three negroes anywhere, but you have got to keep those people closely guarded and work them on the roads, and it makes the roads, as a rule, cost 20 per cent. more for guard force. The law says whenever they are so divided that it requires more guards to every ten men. We hire more men and charge them up to the road.

Mr. Pratt: Let the railroads pay for those men in money.

Capt. Laughinghouse: The Coast Line pays for them in money, but the Alleghany and Statesville pays for them in bonds.

Dr. Templeton: We were exceedingly fortunate, gentlemen, in having the Superintendent of the State Penitentiary with us to explain this matter. I am sure that no member of this association desires to put an unsuitable convict at work upon the public highway, and I am gratified to know that conditions are not so bad there. However, I want to hark back to that idea of competing with free labor. I want to say to you that if there was but one bale of cotton raised in North Carolina by criminal labor, it would hurt the rights of the free. It was not

the tax upon the pound of tea that the people rebelled against, it was the duty at all, and the farmers of this country are opposed to the principle of working criminal labor in competition with free labor, whether it brings much or little.

Mr. Mills, of Iredell County: I have had a little experience building roads. I commenced the road movement in our county in 1902, and I have worked convict labor in making macadam roads. We made about 32 miles of roads in our county with convict labor, which cost anywhere from \$3,500 to \$5,000 per mile. It is practically all to pieces now. The up-keep has been so great that it has practically gone to pieces. While I am in favor of working convict labor on public roads, and I believe it can be worked to advantage where you make macadam roads, you can not work to advantage unless you have them somewhat condensed. Whenever you scatter them, you increase your cost of working them. At the crusher you can work them to good advantage, and in scattering rock on the roads, but the idea of grading roads with picks and shovels and throwing it up is a big mistake. It costs too much money. You can not work convict labor and machinery to advantage. Since we have been building roads under this bond issue, we have practically built 15 miles of roads, which includes the bridges. The first 15 miles had to take in all the expensive bridges, many of them iron, and that has cost about \$1,700 a mile, bridges included. I would not give one mile of our top-soil, sand-clay road, for any other road built. As a matter of fact, in some places you can not build a sand-clay road on account of the soil. Nothing but the same kind of soil to put on it—no sand. There you have, of course, to build a rock road; but in most parts of our county the steepest grade is only about $3\frac{1}{2}$ per cent. The work is well rounded up with 8 or 10 inches of good top soil, and this makes the best road I have seen. Some of the roads made last winter looked at the time a failure. It got into a regular loblolly, but now it is the best road in the county. It has come together like a brick, and if you keep it well rounded up, I do not believe it will ever give any more trouble.

I would say this in regard to the convicts; that with eight teams and machinery and with sufficient men to run it, I will do three times the work that you can do with 40 convicts in a month.

My idea as to convict labor in Iredell County is this: It is up to every county to run its own county government to the best advantage. I am not speaking for the State, but for my home. When we get our roads built, instead of having a camp of convicts for the maintenance of these roads, you can keep one machine and a few men and keep the roads up.

Mr. J. S. Mayer, of Mecklenburg County: I wish to say a few words as to the experience Mecklenburg has had in the use of convict labor. We have used this labor satisfactorily for twenty-five years, at least. How much longer it will be suitable for us, I am unable to say, but it has been entirely satisfactory. It has been the least expensive of any of the labor we have had. It has been especially useful in grading out heavy fills, and we could not have done it so cheaply as we have done, and we could not have succeeded like we have, without this convict labor.

In regard to the convict labor as explained by the Superintendent of the Prison in Iredell County, would say that they have level land and road building in that county is not like it is in this county; and while a system of convict labor in the eastern part of the State might not be so useful as extensive use of machinery, yet in this section, with our heavy grades, the convict labor seems best.

Mr. Hammer, of Randolph County: I would not put my word against those who have more experience, but I have been somewhat astonished at the declarations of the gentlemen here with reference to convict help in the building of roads. Unless I am misinformed, in every county in North Carolina where good roads have been built, the work has been done by convicts. When that plan has been abandoned, the building of good roads has practically been abandoned.

There are two ideas which evidently prevail in the State with reference to convicts, and we ought to settle this question. If the convicts are to be used in the building of railroads, the State administration and the Legislature ought to adopt some plan for their equitable distribution. For instance, my friend here, the president of a new railroad which is to be constructed from the mountains to the sea, should have the benefit of the State convicts, if the other roads are to have them, and when the next Legislature meets, Mr. McDonald ought to have a certain proportion of these convicts. If the Statesville Air Line and this road, which is running into the mountains, opening up one of the finest parts of the State, is to have the convicts, then the eastern part of the State should have some.

I do think our Superintendent of the State Penitentiary has, for this State, at least, overdrawn the matter as to the class of convicts sent to the penitentiary. In my experience with the criminal docket, I have never known a convict sent to the penitentiary because he is decrepit and old. They are easily turned loose, and they usually are, unless their offense is a very grave one. I have known in three or four instances of ten-year convicts being sent to the State prison because of the fact that they had some ailment and were sent there for the purpose of being treated better than they would be on the county roads. I must say all of the convicts in the State prison who are now old, must be

those serving life sentences. I do not object to Iredell, Ashe, Wilkes, or Moore County, or any other county in the State receiving aid from convicts. But if we are going to use these convicts in the construction of railroads, we ought to treat all railroads alike. The species of favoritism existing in the last few years in the State does not meet with the approbation of the people of the State. The only way that this system of favoritism has been promulgated has been by keeping quiet about it and saying little. I am not wedded very closely to the idea. I am in favor of selling the State farm, using the money to build roads, and putting every convict that can be put on the building of State roads by the State, and not by the counties, and issuing \$20,000,000 of bonds to do it.

Mr. Pratt: Mr. President:—I would like to say one or two words in regard to the use of State convicts on the public roads, inasmuch as it is a subject to which I have given considerable thought and study not only in this State, but in other States of the Union. The point I would like to emphasize to-day is this, that if it is possible for the State convicts to be worked to advantage in building railroads, they can be worked to equally as good advantage in building public roads. In regard to the cost per convict for maintaining a chain gang, would say that, according to the statistics collected at my office, the cost for guarding, keeping, and feeding convicts varies from 35 to 55 cents per day. These data are true unless all the officials having charge of convicts have made false statements to my office. You who have been in charge of convicts in connection with public road work know approximately what it costs per day per convict for maintaining a chain gang.

We know we have a certain number of able-bodied convicts who are either leased directly to railroads or used by the railroads in their construction work, and that these convicts are paid for, not in cash, but in stock, which stock is, as a rule, never worth anything to the State; and thus a private corporation gets the direct benefit of the convict labor, the cost of which we as individual citizens have paid in taxes for the arrest, prosecution, and conviction of the convict.

Now if we have able-bodied convicts capable of being worked on the State farm or away from the State prison, and it is safe to work them on railroads, it is just as safe and profitable to work them on the public roads of North Carolina; and if there is work which they can do to advantage on a railroad, there is just as much work that they can do to advantage on a public road. The only difference in the work on the public road and the railroad is that the grading on the public road is wider and not as low as on the railroad, but there is plenty of rock work in North Carolina where the convict can be used just as well on the public road as on the railroad.

If you will read the resolutions that were passed by this Association at its last annual convention and read the proposed bill introduced into the Legislature of 1911, you will find that it was worded something like this: That the State convicts now being worked on the railroads or leased for any other purpose away from the property of the State shall be worked on the public roads under the supervision of a Highway Commission (if such a Commission is established), or under the Geological Survey, the convicts to be guarded by and under the control of the Superintendent of the State Prison.

In other words, the Superintendent of the State Prison is to be responsible, as he is today, for the convict camp when they are at work on the public roads. I believe the plan is entirely feasible. Where we have a through highway like the Central Highway extending through a number of counties, are we not public-spirited enough to detail 20 to 50 convicts to assist every poor township to build at least a small part of the link through their county? For instance, the people living in the section of the Blue Ridge where the Central Highway crosses it are unable to bear the expense of such a road; but all the people of the State are interested in its construction, and I believe all progressive citizens would be willing to see such a disposal made of the State convicts. Those convicts would be either under the supervision of a Highway Commission or the Survey, and would be kept under the direct control of the Superintendent of the State Prison, and I believe it would be to the best interest of North Carolina to give up furnishing State convicts to private corporations. While the Atlantic Coast Line pays cash for them, the others pay stock; and the bonds and stock are usually not worth the paper they are printed on. The public road has a direct interest for every citizen of the State, because he has the privilege of using every mile of public road, no matter where it is situated in the State; and I hope that the sentiment of this convention will be for the able-bodied State convicts to be used on the public road work instead of on the railroads.

I will read a letter from Mr. R. M. Wise, formerly Superintendent of Roads for Cumberland County, in regard to this question:

R. M. WISE,

SUPERINTENDENT OF ROADS FOR CUMBERLAND COUNTY.

(R. F. D. No. 3.)

FAYETTEVILLE, N. C., July 22, 1912.

Dr. Joseph Hyde Pratt, Chapel Hill, N. C.

DEAR SIR: Yours to hand; contents carefully noted. Will say that I regret very much that I am situated so just now that I can not attend the convention. Since I wrote you last, I have resigned my position as road superintendent here. I have striven very hard to get good roads here in this

county, but it seems useless to try. The people killed the Bond Issue, and we have no money to work on. If I could attend the convention I should recommend some State aid in road work. I think all State prisoners should be worked on the county road, instead of on the railroad. I hope this convention will thoroughly discuss this matter over and all come to the same opinion, and let's send men to our next Legislature who will attend to this matter and pass the law. I would like very much to be at the convention and speak on this matter. I am now with the Aberdeen & Rockfish Railroad Co. on construction work, and it will be impossible for me to attend. We have eighty-six State prisoners here on this work. This job will last but for only a few months, probably until December, and I will be ready to go back to county road work again, as I like it much better than railroad work. If anything should offer itself to you in the near future that you can recommend me to, I will be glad to take a position for another year. I can build any kind of sand and clay and macadam roads. Anything you can do for me in helping me to secure a position for another year will always be remembered.

Regretting very much I am unable to attend the convention, I must close, with best wishes to you and the convention, and hoping much good may be accomplished.

Yours truly,

(Signed)

R. M. WISE.

Mr. E. L. Daughtridge, of Nash County: As I understand it, the sentiment of all this talk in regard to good roads building is to promote the progress and the development of this great State of ours. I believe that good road building and the education of the rural people will do more to bring about this high degree of development than anything else we can do, and I hope that this convention will adopt some resolution memorializing the Legislature to do something that will, in every way possible, bring the good roads to the State, and for the promotion of education in the rural districts. I believe it will do more to promote the development of the State's agricultural resources than anything else that can be done. You go out in any county in the State where there have been good roads built, and you will see beautiful residences and schoolhouses built up; on that road you will see beautiful grounds laid out; you will see great improvement in the appearance of the citizenship, and I am in favor of building good roads, and I am in favor of doing all that I can to promote the building of good roads in all the rural districts of the State, and in the promotion of rural education.

AFTERNOON SESSION.

THURSDAY, AUGUST 1, 2:30 O'CLOCK.

THE PRESIDENT: We have with us the Congressman from the First District of North Carolina, a man interested, not only in practical politics, but in the State and in all parts of the State. In my opinion,

he has done more to help upbuild the State of North Carolina in the last ten years than any other man in North Carolina. He certainly has had the nerve to go out in his own district and organize county good roads associations and talk agriculture, something no other Congressman has done. He is doing something for his district and something for his State, and has sense enough to know that he is playing the finest politics that possibly can be played. He is doing things for the First Congressional District. Gentlemen, I introduce the Hon. John H. Small.

Address.

BY HON. JOHN H. SMALL, CONGRESSMAN FROM THE FIRST DISTRICT.

I came to this meeting, Mr. President, at some sacrifice, but I have been amply repaid by what I have seen and heard already at the morning session. It is a pleasure to come to the progressive county of Mecklenburg.

Night before last I was at a lawn party—so-called—given by a gentleman who lives in Kensington, Maryland, about fifteen miles out of Washington. He is a man of means, has a farm, to which he has retired, and is ordinarily known as an agriculturalist. I had the pleasure of saying then, when I was called on, in a few words, that I derived more pleasure from that occasion than I had during the whole winter at the national capital. I said there was a degree of selfishness and coldness in associating with members in the Capital City, but to get among those people there, perhaps one-half of whom were Maryland farmers, and the neighbors of this gentleman, was an additional pleasure, because of the sincerity and the good friendship and the comradeship which apparently existed on that occasion.

So, for that reason alone, I miss no opportunity which comes to me of visiting our own State and mingling among our own people; but there is an added reason why every citizen wedded to the progress of his State should attend this Association, because it is wedded to an economic movement which means more in the upbuilding of North Carolina and in the betterment of her people than any other one movement.

One year ago, when I had the pleasure of attending the meeting of this Association at Winston-Salem, I brought with me much data and endeavored to make something of an argumentative talk in favor of this movement for obtaining better roads in our State. There are other gentlemen here who will discuss this problem with much more particularity; with much greater knowledge upon the subject than I possess, and, with your permission, this afternoon I am going to take as my text something which was said here this morning by the gentleman who talked to you from Mecklenburg County—Squire Hilton. In closing his talk he used these words—and I took them down at the time:

"You can all have good roads, if you want them, and, if you don't have them, it is your own fault."

As the preachers sometimes do, I will repeat the text, because it ought to be grounded into the civic consciousness of the citizens of North Carolina: "You can all have good roads, if you want them, and, if you do not have them, it is your own fault."

May I ask the privilege of preaching a little sermon, for the brief time I shall talk to you, upon that text?

YOU CAN HAVE GOOD ROADS, IF YOU WANT THEM. Is that a novel proposition to the citizenship of North Carolina? Has there ever been a day in our history when the intelligent citizenship of the State did not realize that if, in his township and his county and his section good roads were desired, that he might have them? And yet, with more than one hundred years of history behind us, with many events attributable to the patriotism and the courage of our people, which make us proud of our ancestry and of their achievements to this day, only here and there, and for a comparatively small mileage can we claim good roads throughout this State. If these few have realized that we could have good roads if we wished them, why have they not been realized? It is because, in a democracy like ours, not only in the solution of the problems which are more generally known as political, but in the solution of the economic problems which confront us, it is not what a part believe and desire, but it is what the majority, if not all of the people wish and desire, which is brought about. That brave son of North Carolina who has gone to his last reward, during his four years term as governor, in spreading the gospel of public education among our people, was wont to say in terms of eloquence and pathos, at times, that "you cannot have an educated people by educating the few; but that education must permeate, and must be the possession of every child, because it is a heritage of all the children of North Carolina." He realized in that propaganda which he waged so incessantly and disinterestedly that success could only come when the people of North Carolina—the parents and the citizens—realized that education and opportunity must be the heritage of all the children.

Then this desire for good roads must exist in the minds and in the consciousness of all the citizens of the respective communities of the State, or, at least, of a sufficient number to make a majority, to leaven the whole lump of civic duty. How may we achieve that result? If we seek, from our own experience, the process by which a desire for a certain thing, or the determination to discharge a certain duty took possession of us, we will realize that it was preceded by knowledge. Ignorance never initiated any good movement, but, with its twin sister, prejudice, has retarded many.

We must inculcate among the people of North Carolina the basic facts upon which the necessity for good roads is predicated. If we could impress upon the minds of the citizens of our respective communities that the tax which we pay for bad roads is infinitely higher than that which we would pay for good roads; if we could accompany that with the knowledge of the benefits which would accrue to them indirectly, and to their communities, by making better roads, with that knowledge, prompted by the sense of civic duty which actuates all our citizens when they are aroused, the problem would be solved, because, with that knowledge duty would take possession of the consciousness of our citizens.

It is astonishing what burdens we will bear when we bear them ignorantly. To illustrate—and I hope that you will not take the illustration to be partisan, because I do not so intend it—the average citizen of our counties, if his State taxes, and his county taxes, or, if he lives in an urban community, his municipal taxes are increased, when he goes to pay that direct tax you will hear from him a complaint, and he must have a good reason for that increase, if he is to be satisfied with it. But he pays an infinitely greater tax if, perchance, he should be living at a time when the indirect tax of a tariff prevails, and yet render no complaint whatever. He will pay the indirect taxes under the system of internal revenue, without complaint.

It is because there is not brought to his mind at the time a consciousness of the burden which he is bearing. And so it is with this unnecessary and burdensome tax which, for more than a hundred years we have been bearing in North Carolina, by reason of bad roads in our respective communities.

To illustrate: I referred, a moment ago, to that propaganda which for fifteen years at least has been waged in North Carolina for public education. In all our past history, either from ignorance of its importance, or from mental stagnation which prevailed, or because our civic conscience had not been aroused, we had either tacitly or impliedly lived under the supposition that this education was intended for the children of the few and not for the many. How is it that for several years we have been building a new schoolhouse for every day of the calendar year? Why is it, now, that month after month we are adding to that galaxy of achievements of our people school district after school district, where taxpayers have already voted upon themselves an additional burden of taxation for the support of the public schools? Why is it our length of term for individuals and towns, as well as in rural communities, has been gradually lengthened, and is being added to every year? Why is it that no man who values his reputation will stand before the intelligent electorate today and say aught against the public schools in North Carolina? Why, I say, this interest? It is because of the agitation and the propaganda of education which has been waged before the people of North Carolina.

We have other problems to solve. Just recently we who live in the coastal plain section of our State have come to a realization of an asset, and of the further proposition that there were thousands, aye, hundreds of thousands of acres of land which had been reclaimed, and for many years had been under cultivation, and yet had not been efficiently drained? We have within these past six years inaugurated a movement for the drainage of our wet lands in North Carolina. Why is that making such commendable progress? Because we went before the people here and there and told them that undrained lands made for bad health, for discomfort, meant the propagation of insects which were injurious to the health and to the vitality of our people, and that, in a material way it meant uncertainty in crop production. That problem exists, not alone in the coastal plain, but, at our last State Drainage Association at Elizabeth City, we had delegates from the county of Mecklenburg, and from other counties in this section, and there we learned facts which many of us knew before, but it was a problem even in the Piedmont section of North Carolina. Just in proportion as that problem is pressed and our people are educated to the importance of the danger, just to that extent will these undrained lands in North Carolina be efficiently drained and yield to the wealth and maintenance and happiness of our people.

One of the problems which is to-day agitating the intelligence of the world everywhere is the public health of the people. The problem of hygiene, by which the vitality and efficiency of the average man may be increased; by which his usefulness to his family and his community may be enhanced, is involved in this problem of the improvement of the public health of the respective communities in this State and in other states.

Under the efficient action of our State Board of Health, and its most valuable secretary, aided by appropriations made by the State Legislature, this movement for the betterment of the health of the people is going on apace. It will grow just in proportion as we educate the people of North Carolina.

So, in this problem of better roads in North Carolina, if we wish to ex-

emphly the truth of that good text, laid down by Squire Hilton this morning,—that if we want public roads we may have them—we must agitate and educate the people of North Carolina continually upon the wastefulness of bad roads, and the material and economic benefit of good roads.

To my mind, this gathering here from thirty or fifty counties—I have not heard the number—in North Carolina, of patriotic citizens who have gathered together to confer,—to inform themselves—constitutes a distinct note of encouragement in this valuable movement for securing better public roads in our State.

Gentlemen, who shall lead in this matter of the education of our people in these great public movements which are made for their benefit? There are two classes of citizens: the one selfish, the other unselfish. The one lives for himself alone, the other lives for his fellows. The one whose energy and ambition is only stirred when he can add a dollar to his bank account, the other, who adds to his activities the betterment of the community in which he lives. We must learn, if we come properly to the discharge of our public duties, that there are in this age—the best age, I think, in the world's history,—some of its most important movements, which may only be accomplished by coöperation. Coöperation lies at the basis of civilization. Just as we advance and our civilization becomes more complex, just to that extent must the patriotic citizen learn that he does not live unto himself alone, but that in part—and in good part—if you please, his activities must be exerted in behalf of his fellows and of his community.

I would like to divert here just one moment to make a reference to our University and to our colleges in North Carolina. If my opinion is of any value whatever—and I think there will be a consensus upon it—I believe that the child in the public school, that the boy or girl so fortunate as to attend the colleges and the universities, ought to have inculcated in their minds, as a necessary part of their education, the basic proposition that they owe a duty to the community and to the State and to the country in which they live. (Applause.) Take the child in the public school—the recipient, not of public bounty, but the recipient of the discharge of a public civic duty upon the part of the citizens of his community. How valuable, and how appropriate it would be if that child could be made to learn, in the formative period of his life, that he has been receiving, and that in return, when he comes to years of maturity he must give, and give in abundance. The greater the opportunity, the greater the responsibility, and I cannot imagine a more conspicuous misfit than the young man who has attended our colleges or the University, and leaves those schools not realizing in his own heart, and in his own conscience that the gifts and the training which he has acquired, should be expended in good part for the betterment of humanity. (Applause.)

Take this movement for public roads. What higher proposition for the benefit of the State can there be than the purposes of this Association? I would like to see the President and the members of the faculty of every college, from the University down, in North Carolina, in attendance upon this meeting to-day. And I want to congratulate Professor Riddick, of the A. & M. College, and Professor Stacy, of the University, and any other members of the faculty of our colleges who are present, upon their breadth and upon their sense of civic duty in attending this Good Roads Association. Let the colleges add to their academic curriculum a school of civic duty, by which there may be inculcated in the minds of the students the obligation which they owe to their fellows, their community and their country.

One of the distinct movements which is now shaping itself throughout our country, and which has been notable in Germany, has been the betterment of country or rural life. For too many years in our past history those who lived upon the farm have been considered as only existing for purposes of exploitation by others. We are nearing the dawn of a better and a brighter day for rural life. We are providing for them better and longer terms of public schools, and we are realizing a neglect of duty for all of these generations in our past history, in not training the children from the farm in the public schools along the lines of their avocation in life.

If the Farmers' Union of this State, and of the South generally, and of the whole country, should have no other proposition in its platform of principles for the betterment of farm life than the introduction of civic education in the public schools, there would be ample justification for its existence and for its permanence for all time. (Applause.) I hope that that movement which they have started will have the earnest and coöperative efforts of all the farmers in North Carolina, because, if they will unite upon it, concentrate their efforts, there will be such an educative public sentiment that the Legislature, and the several public-spirited communities of the State shall not be able to resist it.

Eighty-one per cent of the people of North Carolina, in spite of our growth in manufacturing, are still dependent upon the farm for their livelihood. Not only do they owe a duty to themselves in elevating farm life, its comforts, its opportunities, but how much more, if you please, do that 21 per cent. who live in the towns where a larger proportion of the men and women are educated, and presumably better fitted to discharge their duties to their kind—how much greater is their duty in this movement for the elevation of rural life?

Now, gentlemen, may I detain you a moment by this little sermon which I am endeavoring to preach about the relationship of politics and parties to the material upbuilding of North Carolina and of the country? The average man appears to believe that for some unaccountable reason politics should be disassociated from these economic movements. I think in that, they are undeniably wrong. What is politics? The science of government. For what purpose is government? For the amelioration, for the benefit, for the happiness and the life and liberty of the people. Therefore, whatever makes for the betterment of the people ought to interest politics, politicians and political parties.

Without intending, as I said, to interject anything of a partisan nature into this talk, because, I imagine, there are men of both political parties in this audience, I may refer to the fact that for the present, at least, and for some years in the past, the dominant party in North Carolina has been the Democratic party. Four years ago, in this city, when the Committee on Resolutions was in session, I, with some degree of pride, had prepared a series of resolutions, recognizing and advocating and committing that party to some, if not most of these economic movements. A declaration for good roads and for a Highway Engineering Department; a declaration in favor of the movement for our Public Health; a declaration in favor of Drainage; a declaration upon some of the phases of Transportation, and other things; and just before the committee had concluded their deliberations, and were about ready to submit their report, I called upon them to know what disposition they had made of these resolutions, and the Chairman could not even find them, and the platform was absolutely silent upon every one of those subjects which

were covered by the proposed resolutions which I had handed to the Committee.

Whether it is heresy or not, I say that any political party which neglects to put the seal of its approval upon every movement which makes for the betterment of the people, particularly those about which there is a consensus of opinion, and upon which no dispute arises, violates a duty which it owes to the people and is unworthy of the confidence, to that extent, of the people, whose confidence it seeks.

I believe the time has come in North Carolina when it is not only the duty of every citizen to lend his ability and his efforts and his money to these movements for the public weal, but that every man from township constable to governor—the President—who has been elevated to a position of public trust by the vote and the confidence of his people, owes it as his solemn duty, acted on persistently, to lead and to follow in all these movements that make for public betterment. (Applause.)

I believe in a partisan, and yet, in all the past years of our history we have emphasized only those problems which arose out of controverted questions in the construction of our Constitution or of basic questions of taxation or otherwise. While we should not neglect that, yet in this economical age, when so much of the weal of our people depends upon the success in the solution of these economic problems, we should also devote that attention which is necessary to the consummation of all these movements in which is involved the uplift of our people.

'Squire Hilton said: "And, if you don't have them, it is your fault."

The most difficult thing for weak humanity to do is to acknowledge their faults. As a boy and a young man I used to attend all the closing exercises of the schools which it was convenient for me to attend, and I can hear ringing in my ears, even to this day, panegyrics of the people of North Carolina. In maturer years I got tired of them, and I escape them now whenever I can. Up to this day you can hear political speakers in the campaigns telling our people about their ills and their misfortunes, and it is always put upon the other fellow. The cause is located generally somewhere out of the State. It is just as true now as when the great Bard uttered it, that it is not in our stars, but in ourselves that we are underlings. I believe we should cultivate the disposition, both as individuals and as communities, of locating the fault when there has been any neglect of civic duty, where that fault belongs. If we could have had good roads in North Carolina for a hundred years and have not had them, and if to-day where they do not exist it is our fault, why not let us acknowledge the fault and be manly about it? It is our fault, and whether in my own county of Beaufort, or in the county of Alexander, or elsewhere in North Carolina, bad roads still exist, as a disgrace and a menace to our progress, it will help us in improving them if we acknowledge that they are bad, and have been bad because of our inadvertence and our disregard of our individual duty.

I have been about among the farmers a great deal, and I have heard the townspeople discuss public roads. I know, for more than a thousand times—probably three or four times that—I have heard the intelligent citizen abuse the overseer. I have heard them criticise some other man in the community; under the old law, criticise the court of justices of the peace of the community; I have heard innumerable times the Board of Commissioners of the county criticised. I do not recall that I have heard a single one of those complaining citizens say that he had not done his duty in the matter. And until

there shall have been in the warp and woof of our citizenship that sense of individual duty and of obligation to the communities in the State, we shall not secure that which is dear to our hearts—better public roads for North Carolina.

Now, gentlemen, with one other suggestion I shall not further indulge upon your patience. If we, as citizens, have been neglectful, so have our constituted public servants been neglectful, and in this matter of good roads I want to say also that substantially its solution lies with our local communities and with the State of North Carolina, and not with the general government. And, by the way, let me interject this statement: Dr. Pratt had put me down to talk on post roads, but I did not know it until after I saw the program. Just a word in regard to the local government and the States and the communities to this question of public roads: I cannot get very enthusiastic upon the matter of aid from the general government to good roads, and for this reason: It is a long time in the future before we are going to get the right kind of aid, and I would not like to have our people believe in aid by the general government at an early day, and thereby retard local activity among our own people. Another reason is this: Whenever the general government does make appropriations for the public roads in the several States, although the appropriation, in the aggregate, will seem large, yet, as a matter of fact, when it is divided among the several States upon whatever basis may seem equitable, it will build very few miles of public highway. Again, whenever there shall have been such legislation, it will be predicated upon a coöperation with the States and the several localities, and unless, in the meantime, we have educated our own people to the importance of public roads, to a working knowledge of the best methods of construction, to an understanding of the best plans by which we may secure the necessary money, and also the devising of proper plans for their construction, we will not be prepared for this coöperation with the general government in the improvement of our public roads. As long as I shall be a member of the House of Representatives, I shall be in favor of any practical legislation by Congress in aid of public roads; but I am sure that this provision inserted in the House Appropriation Bill and passed by the House, will not become a law at this session because the Senate has stricken it out, and I believe it is going to be difficult to have the conferees agree upon it. But whenever it shall come, in order to avail ourselves of the greatest benefit of any appropriation by Congress, we must have here, in our own midst, an active, intelligent, insistent movement for public roads in our own county and in our own State.

Now I want to come to this question of our own public servants in North Carolina. I do not believe that we, as a people, are sufficiently insistent upon proper legislation in aid of these economic movements. I heard Dr. Pratt narrate this morning the legislative history which resulted in the failure of that bill creating an Engineering Department, by which engineers should be appointed for the construction and the laying out of roads. I believe whenever a public servant is recreant in any duty, that publicity is one of the present remedies for his dereliction. I should have liked to have had Dr. Pratt say who it was that had the bill tabled. Let us have his name, in order that the people of North Carolina may possess the information. If he was right, we ought to know it. If we of the people of North Carolina—those represented in this Good Roads Association—are right, then he ought to be condemned. In other words, we should put it in the limelight, give due credit where it belongs, and discredit where there is dereliction upon

the part of any member of the Legislature, or any other public servant. Most of the counties of North Carolina have not yet nominated their members to the Legislature. In every senatorial district and in every county where members of the Legislature are to be nominated, by both political parties—good citizens—members of the county and of the State Good Roads Association, if no others, ought to be present and move the passage of a resolution which will commit the nominees for the Legislature to stand for the employment of an engineer to send to different communities in the solution of this drainage problem; to stand for a general Fish Law, by which the extermination of our fish may be prevented, and by which they may become a more valuable asset to all of the people of North Carolina; to stand for any other of these movements which make for the progress of the State. We should make a criterion of public servants, not the man profuse in promises, but the man faithful in the rendition of his promises, and who will aid in the solution of these great problems for the betterment of our people. (Applause.)

If you will pardon, gentlemen, my little sermon, and any appearance of egotism which may have appeared in it, and take simply the sentiments for what they are worth, if they are worthy of your consideration, I am very thankful indeed to have had this opportunity to have appeared before you, and for your most courteous attention.

THE PRESIDENT: I know you have all enjoyed the speech of Mr. Small. We have with us today one of the greatest road makers in the United States, and one of the greatest authorities on road building in this country—Major W. W. Crosby, of Maryland. I had the pleasure recently, of driving over about forty miles of his roads. He has the finest system of roads anywhere in the United States, I suppose.

Tar and Asphalt Binders.

BY MAJOR W. W. CROSBY, HIGHWAY ENGINEER, BALTIMORE, MD.

Ladies and Gentlemen:—Among my earliest recollections in connection with road work is the name of Mecklenburg County, North Carolina; and I think generally among those who have studied the progress of road work in the United States, the name of Mecklenburg County stands out as one of the headwaters of the good roads flood now so generally sweeping over the country. It was, therefore, with peculiar pleasure, that, as a road-builder, I received an invitation to be present at this convention. I had often hoped to have the pleasure of coming to Mecklenburg County, 'making a pilgrimage,' as it were, to the headquarters of good roads.

A few days ago I received an invitation from my friend, Dr. Pratt, and I was very much afraid—in fact, I wrote him—that I did not see how I could come. I had some engagements which I thought would prevent. Yesterday I got a telegram from him, and it was so pathetic that I threw business to the winds and satisfied myself, and, at the same time, responded to his request to be with you.

I make this explanation because I feel that this convention is, perhaps, due an explanation of my not having properly prepared a paper on the rather technical subject assigned me—that of Tar and Asphalt Binders for Roadways. As you realize, that is a subject in which one can easily get lost by attempting to deliver, off-hand, a general address.

I might say, in starting, that while originally, an earth road was entirely sufficient for the travel in the earlier days, later, as the traffic became more heavy and more frequent, it was found that the earth roads could not be economically maintained, and that, for the sake of economy, as well as for the sake of satisfaction, something tougher and more resistant than an earth surface would have to be provided. From that developed the stone surface. Now, in the past few years a great revolution has come about in the traffic conditions existing on our public roads, and without going into all the details, I may state that it has been found necessary to supply in the stone surfacing something of a tougher and more resistant nature, in the way of a cementing medium than the stone dust and water employed in cementing the macadam together.

The automobile has produced a rather different force on the road crust—a lateral force as well as a vertical one, and it is this lateral force which ultimately disintegrates the road. Some stone roads have not been properly made, and when these have been subjected to severe automobile traffic, they have literally been pulled laterally to pieces, and the pieces composing the surface strewn along the road by this lateral action of the automobile pushing behind, as it were, in order to push itself ahead.

You can see, from what I have said, that one of the most important characteristics of a pitch binder is stickiness. It must not only be sufficiently sticky,—cohesive in itself—to hold itself together and resist pulling apart in itself, but it must also be sticky enough to adhere to the particles of stone between which the binder lies. This stickiness is one of the characteristics of a binder of first importance.

There are other things to consider,—freedom from too great susceptibility to changes in temperature; freedom from sufficient oiliness not to be objectionable from that cause; freedom from too short a life, so that it may be objectionable by not lasting long enough, and in that way proving uneconomical in its use; and certain other things which we may touch on later.

There are two kinds of binders at present, generally used: First come the tars, proceeding from the manufacture of gas or from coke—of which gas is the by-product. The other kind comes either from the natural or the artificial distillation of the asphaltic or other petroleums. Those are the two general classes, known under the heads of Tar and Asphalt. Without splitting hairs on the subject of definitions, they cover the large majority, if not all, of the binders in use.

Let us consider the tars first. These may be divided into two classes: One the coal tars, and the other the water-gas tars. The coal tars, as stated, proceed from coal, either in the production of gas or of coke. The water-gas tars are produced more from oil than they are from coal, although coal is used in the production of water gas. But the gas produced from the coal and the steam is enriched by the introduction of highly heated petroleum, as otherwise the gas would not give sufficient light, and through this process a tar is made, known as a "water-gas tar" which is quite different from the ordinary coal tars.

For a long time water-gas tar was not supposed to be of any value for road purposes. In fact, it was condemned by some very eminent authorities on the subject of roads. Recently, however, there has been quite a change of opinion as to the value of water-gas tar, and I think that, generally, the estimation of water-gas tars is still growing rapidly higher.

Both the coal tars, and the water-gas tars are unfit for use, under ordinary

conditions, in their natural or raw state, and they have to be refined, in order to fit them for use on almost any kind of road. This refining consists of taking off some of the lighter constituents, such as the water and some of the lighter oils, and the balance of the tar is used, in different shapes, for different purposes.

The asphaltic binders proceed generally from two sources. One source is the natural asphaltic lakes or deposits, where I think it is pretty generally now agreed that the asphalt found, in a fairly solid state, has been "distilled" slowly, and through a long period of time, but practically distilled, by nature, and the pitch which remains has been formed in that way from what was, originally, an oil, or a very oily fluid.

The "oil-asphalts," so-called, are made artificially from the asphaltic or semi-asphaltic oils.

We have quite a variety of oils in this country, and some of the oils which under the ordinary definition of the term "asphalt" appear to be free from asphalt, when cooked down yield a black, gummy residue, hard, without analysis difficult to distinguish between the good and the bad.

I am frequently asked the question what I consider the "best binder" or the "best" bituminous material. I fully realize what the person asking the question of me means. He means what is the best, under his ordinary local condition, but not knowing his conditions, and as ordinary conditions vary with localities, and as, really, ordinary conditions are not simple conditions, but complex conditions, putting that question is a great deal like asking a doctor "What do you consider the best family medicine to keep in the house?" Now it used to be not so many years ago, that many families *did* keep a family medicine, and, as a small boy, I distinctly remember taking a some such which I think was a mixture of molasses, sulphur and vinegar. Doctors now-a-days, however, carefully diagnose a case, and prescribe according to the results of their diagnosis. It should be the same with road builders, not only in the matter of binders, but also in the matter of building roads of any kind. It has been said, and it is a definition which has been quite generally accepted, that an engineer is one who can do well for one dollar, what any bungler can do, after a fashion, for two. Consequently the economical side of the engineer's problem is most important in these days. Now-a-days the demand for efficiency, the demand for making a dollar go farther than ever, the comparison of results of different practices, on the dollar basis, makes it more important than ever that in the construction of a road we do not waste money, or in the application of a binder we do not do the same thing.

In some parts of North Carolina—as I am sure is the case in Maryland—it would be the worst possible engineering to build a bituminous macadam road, or a bitulithic road, such as the main street here, to satisfy the apparent needs of that community, because it would be found to be such rank extravagance. In the same way the building of a sand-clay road, or a cheap road, where the conditions demand and warrant a road of the most expensive type, would also be bad engineering, and bad, economically, in the long run. The first cost of an article is not, by any means, its final cost, and the proper basis of comparison is not the first cost, but the cost over the life of the article.

In the matter of binders—"binders" as the term is generally used—applies to the heavier and more adhesive pitches which are used for incorporation into the road surface itself. Sometimes a liberal use of the term is made to designate the pitches spread over the surface, and which with stone chips and gravel, really forms a carpet on top of the road surface. However, the prac-

tice now-a-days is clearing up the use of the word "binders," by restricting it to those heavier pitches used and incorporated with the stone or the mineral aggregate forming the road surface.

The selection of a binder for that sort of a road depends upon several conditions. If it is decided that the traffic is heavy enough to warrant that form of construction—which, by the way, is the most expensive form of construction in the use of pitches—then there may be a choice as to whether that crust may be formed of a very close-grained mixture of larger stones, smaller stones, sand and pitch, or whether a relatively open and porous mixture would answer the purpose. The decision on the binder may depend upon the character of the stone used. Some binders will stick better to limestone than to trap-rock, and if the travel is very heavy, and trap-rock is the most available material, then it may be necessary to select a different binder than otherwise.

Next to the mixing method of building a pitch macadam road comes in the penetration or grouting method. This is often the easiest one to use. It does not involve any serious expenditure for machinery, and it frequently appeals to the road authorities in charge. That is, they may be new to the idea of using bituminous materials and some progressive individual may go to them and say, "Now, you are going to build an ordinary macadam road out here; let's, before we put on the chips, sprinkle some pitch over the stone forming the road, and then put the chips on. It will not cost much to do it, and it will give a better road." I have frequently seen road authorities do that, where, if some one had gone to them and asked them to buy a mixing plant and put down a mixed macadam, nothing of the sort would have been done.

In the use of the mixing method some localities have been interfered with by certain patentees who have threatened injunction proceedings unless royalties were paid those patentees for the use of certain rights which they claimed to own, and that, again, has given opportunity for the penetration method to be used with, frequently, very satisfactory results.

In the penetration method, as the stone cannot be kept heated as it is with the mixing method, and as the binder is somewhat exposed to cooling by the air, during the time it passes from the tank until it gets into the voids of the road, you can see that a binder of a somewhat different nature may be required from what should be used in the case of the mixing method.

The next method, in point of cost on the descending scale, which has given success, is the method of surface treatments. This method developed, probably, from the need of some palliative to remedy the dust conditions. Some macadam roads were very good, but the dust which lay on them was so distributed and became so serious an objection, where, before that, it had not been so, that some effort was made to keep that dust down. Water was used, but was rather unsatisfactory. If applied in sufficient quantities to make any appreciable effect, the road was quite muddy immediately afterwards, and in a short time in hot weather was dry again, and the effect of the application was lost. The next development was the sprinkling of a light oil. The oil was objectionable in that, while it held the dust down to some extent, it did not lay it entirely, and the oily dust ruined anything in the shape of clothes with which it came in contact.

Then we began using an "asphaltic oil," thinking to stick the dust down on the road, and relying on the stickiness of the "asphalt" in the oil to effect that end. In some cases that was a decided improvement and quite a success, but it had its defects principally in the scaling off of portions of the oiled

roadway some time after the road had become packed down. It was discovered that the dust was a poor thing to make the carpet of, and that clean stone chips were much better. So that the method of surface treatment now, as best practiced, is to clean the road thoroughly before applying any oil of any kind; to apply a suitable material, and to cover that material promptly with clean stone chips or pea gravel; and then, generally, to pass a roller over the surface and to open the road to traffic.

You can readily see that this may require a still different character of binder or pitchy material than either of the other methods. The success of this latter treatment depends, largely, where the original road is in good condition, on the proper selection of the bituminous material to be used.

There have been a great many materials put upon the market for use in all these methods, and while I am somewhat of a believer in the theory that "Whatever is, has a place in this world," and I would not like to say that some of these materials are absolutely worthless; I will say that the successful use of some of them is so limited that it has not come within my experience. Some of them are very satisfactory, and the selection of one or the other depends upon the amount of traffic, the kind of traffic, the character of the old road, and the character of the results desired; also, of course, again upon the relative cost of the various materials offered. The selection of a binder or an oil or anything between the two should be made with care, and, after careful consideration of all those conditions, and should be made by an unprejudiced and competent expert. It should not be left to the selling agents of the material, although it too frequently is.

In connection with this latter treatment of surface application, one point has been very clearly brought out: That if the material is too oily, it is bound to prove unsatisfactory, although that unsatisfactory condition may not show up in the earlier days of its use. There are several materials of this nature offered on the market, and generally offered at pretty low prices. They are, in most cases, by-products of other processes and, naturally enough, it would only be an accident if a by-product proved as suitable for a purpose as a material made expressly for that purpose.

These unsatisfactory materials that I speak of generally contain a large quantity of what we call "middle oil." That is, if we take a semi-liquid bituminous material, either tar or asphaltic in character, it is possible to divide that material into three distinct parts. The lighter part will be watery and very fluid, the middle part will be oily, and quite thick and viscous, and the heavier part will be almost like roofing pitch in fairly cold weather. Now if that middle fraction is too large in proportion to the other two, you are bound to get one or both of two results. The first is that in the winter season, where the roads are not protected by ice and snow from hard-tire traffic and horse traffic, such as is the case in Maryland, that carpet will churn up into slimy, black, and intensely disagreeable mud.

I went out this morning to look at a piece of road outside of Charlotte, and found that a material had been used there which had not been satisfactory in that particular with us in Maryland. I inquired if they had had such unsatisfactory results as I mentioned, and was told that that had not been the case here. It may be that your climatic conditions are so different as to prevent that unfortunate condition occurring in this locality, or that your experience is as yet too short for its development.

The other bad result of too oily a material is this: After a period the road

appears to move either lengthwise or sidewise, or sometimes both, and a series of ridges or humps and hollows appear in the road. That may be due to insufficient compaction of the mixture of stone and pitch, even when a good pitch is used; but, if the rolling has been sufficient, and the stone has been compacted as much as practicable, and a too oily pitch has been used, or, with an old macadam road, cleaned and coated with the principle which I have laid before you is correct, and that there can be too much of that middle fraction of oil in a pitch for satisfactory results.

The use of pitch in road building outside of the sheet asphalt pavements, is comparatively new, and considerable study is now being given to a great many problems which arise in this connection. Some of them are still unsolved, but through coöperation and persistence, we hope to be able to solve the most of them in the near future.

I think I have probably detained you long enough from my side of the fence, but I was told there might be some questions put to me, and if there are any who would like to ask any questions, I would be glad to do anything I can to answer them.

Mr. Mayer: How long have you had experience with the tar binder, where you put this application on the old macadam as a binder?

A. The first application that I personally made was in 1907. I have been connected with similar work since 1903—nearly ten years, but I did not do any myself until I had tried to learn something from the failures of other people.

Q. What is the length of life of the average binder?

A. This piece that I put down in 1907 is just as good today as it was the day it was laid. I have seen some of the older ones laid in 1903 or 1904 or 1905 gone to pieces. These were all local tars, however, and I think the ordinary coal tar can reasonably be expected to last about three or four years.

Q. In putting down a binder, would you put it down entirely at one time, or in divisions, like in painting a house? Is it better to put it down every six months, if you are going to put on one and one-half or two gallons to a yard?

A. Speaking of treating an old macadam road, if the surface is in first-class condition—there are no hollows to be filled up, and the road, after it has been swept, is just about as perfect as you could ask a macadam road to be, I would put on one application and defer the second one from six months to a year. If the road is in only fair condition, I would put on one application, (and in putting that on the pitch will naturally drift into the hollows, be a little thicker there than on the high points, and you thus even up the surface) and put on another application within a few weeks or days, as it might be convenient. I would hesitate to do it the next day, but when I got my road in perfectly satisfactory condition, then I would put off, as in the first place.

the second application. I would only use the mixing method where the traffic is sufficient to warrant it. I would not use it on a country road.

Q. A country road—a suburban road—one of the main entrances into a town, where heavy traffic was going over it, would not you think the mixing would make the road's life longer?

A. Yes, but you must remember the mixing method will probably cost twice as much as the penetration method. I mean, if you take the cost of macadam as constant, then the extra cost of the mixing method will be twice as much as that of the penetration method. I have a road which is one of the main roads leading from the northwest into Baltimore City. The traffic over it is extremely heavy. We have counted as high as 500 motors in two hours there, on certain days, and they run a great many heavily-loaded motor trucks from the city over that road. It has also a very heavy horse-drawn traffic which comes in from the farms. In addition to all that, the country along the side of the road has been building up rapidly since the road was improved, and I do not believe you could go out there and not see a block of brick houses being built with all the lumber and other material hauled out over this road. But we have four miles of penetration method there, which are, in my judgment, as good as any road in the world today, considering its width. I mean that literally, because I have been almost everywhere that good roads are reputed to exist, and I have not seen any better than that one. Now, that was built, as I say, by the penetration method. Some parts of this road—the outer end of it—cost as little as 8 cents per square yard, over and above the cost of ordinary macadam. It has been down two years, and the maintenance runs—well, on some sections they have not been put to any expense, and on others it has run as high as three or four cents per square yard per year. I think the penetration method capable of producing high-class results, if it is properly done, but I doubt very much if the average results of the penetration method will, to the ordinary observer, appear as successful as the mixed method.

Q. You had everything cleaned off before you applied it?

A. The penetration method used was this: Roll the No. 2 stone of your macadam, then, instead of applying screening and water to bind the macadam, put the pitch into the macadam. It penetrates into the No. 2 stone.

Q. We would like to know what its cost is, per mile, to build a road like you are speaking of—the penetration method.

A. The penetration method will cost about \$1,500 to \$2,500 per mile over and above the cost of water-bound macadam. Of course, I am assuming that the road is about fifteen feet wide, and that the conditions

are not extraordinary. The mixing method would cost nearly double that. The method of surface treatment, which is the method of first building a water-bound macadam road and then cleaning off the loose material on the surface and applying the screenings, so as to produce a carpet on top of the macadam, we have done as low as \$400 per mile. It may vary anywhere, I should say, between \$500 and \$1,200 per mile, (for the method of surface treatment) those figures being added to the cost of water-bound macadam.

To some of you the idea of increasing the expenditures, by from \$500 to \$2,500 per mile over and above what seems an already heavy cost of a modern macadam road, may be staggering. But let me say this:

This additional expense is not often to be incurred purely for the sake of luxury, or as an extravagance but rather as a paying investment and for the sake of true economy in the long run. We know that the road cheapest in the first cost—the earth road—may, and frequently does, under traffic greater than a very moderate amount, prove very expensive to maintain and unsatisfactory in many ways. Consequently, for the sake of economy as well as for the sake of greater satisfaction, we *invest* considerable money in surfacing it with foreign material of some kind.

With the best of ordinary macadam roads the same situation again arises. When the traffic over a first-class macadam road develops into such an amount and such a character, as no longer renders it possible to satisfactorily and economically maintain the ordinary macadam as such, then the use of pitch of some kind and by some method must be had and the cost thereof is not really an additional expense, but rather a further *investment* and one which, when properly made, will pay good returns in many ways, including the financial way of reducing the annual cost for the satisfactory maintenance of the road in question. Looking at the matter in this light, we can readily see that Tar and Asphalt Binders may be necessities and their use true economy rather than luxuries in many cases. Extravagance and waste would come then only through improper selection of the materials or method to be used.

Don't expect to build a bituminous macadam road of any kind and to have no maintenance to give to it. These roads built by any method will require maintenance, just as will any other roads, but it should not cost as much. And that maintenance should be just as prompt, just as sufficient, and just as efficient.

I thank you all very much for your attention, and I assure you I have enjoyed being present.

Dr. Pratt then read a telegram from Dr. J. A. Holmes, Chief of the Bureau of Mines, Washington, D. C., stating that he expected to be at the association that evening.

The President announced that the Lakewood Amusement Company had arranged for a fireworks display, to be given by the Greater Charlotte Club at Lakewood Park in the evening. Following this, a talk was made by Mr. T. V. Howell, of the Rural Letter Carriers' Association.

Rural Carriers and Post Roads.

By T. V. HOWELL.

I certainly will not attempt to make you a speech. I have two very valid reasons, or three, one of which I will not mention, however. I had a letter from the Postoffice Department bearing on the subject of rural delivery and post-roads. I had expected to read that, but from some cause or other I have lost it. Just before my name was called, a delegate from my county of Anson said to me: "If you get up there and attempt to make a long speech, the delegates from Anson County will take you out and lynch you." These are two of the reasons. I will not mention the other.

I represent that body of individuals who use more of the public roads of the United States than any other class of men, or, in fact, of any others in the country. We use more than a million miles of the United States roads every day, or a little more than 400,000,000 miles a year; consequently we pray for good roads, we dream of good roads, and we talk about good roads, and in many instances some of our men are instrumental in the building of good roads. The Postoffice Department practically demands that the Rural Letter Carriers be good roads monitors, and I suppose that of the 42,756 rural letter carriers in the United States at least 42,755 of them are good roads advocates. Of course the individual carrier is an enormously small quantity, but there is an old story that if you want to kill the enemy of the human race, you hit light licks, and keep hitting them. Now, the 42,000 rural carriers visiting the people every day, can hit light licks every day, and I am sure that this Association for Good Roads along with the Rural Letter Carriers will give every possible day to the good roads movement that is in their power.

I am authorized to bring the greetings of the State Rural Letter Carriers' Association to this Good Roads Meeting and to state that in their resolutions on the 4th of July the Association and Convention assembled in the city of Asheville, sent their greetings to this Association, and that they were ready to coöperate in any and every move for the advancement of the road work in the State. We passed a resolution favoring the working of the State convicts on the public roads and taking them from the farms and factories and other places where they come in competition with honest labor. The way we reasoned that was this, that the convict has committed a breach against society and owes society a debt, and that there is no better way wherein that debt can reach all classes of society than on the public roads of our State. That is the argument of the Rural Letter Carriers' Association of North Carolina. We also advocate Federal aid for good roads. We endorse the bill that the House passed some time ago, almost without qualification, from the fact that we thought that the bill as read furnished a sufficient incentive for the local associations to make the conditions in their localities such as might be benefited by the National Association. While we regret that the United States Senate has seen fit to take that feature out of the bill, yet we hope that some good may come from the action of the Senate in appointing a committee to examine into the merits of the good roads associations.

I believe that is all that I will try to say, as I know that these people are tired at the end of this very long program, and I will try to do one thing to please you, and that is to quit.

Sand-Clay Roads.

MR. W. L. SPOON, ROAD ENGINEER FOR FORSYTH COUNTY.

The sand-clay road has been in use from time immemorial, and yet the study of it has been very recent. So far as I know the study was never scientifically carried out prior to 1900. It was built in many places throughout South Carolina, and there are many discussions as to who the inventor was. And yet, the actual construction of the sand-clay road in the United States is of recent origin.

The sand-clay is a cheap class of road. It appeals to the farmers and to the average country road builder, and its success is certainly well established in rural history. The bituminous road, and higher classes of road have their mission in the heavily traveled districts, like Charlotte, Asheville and other places, but the macadam road (as was undertaken in this county) to reach all the sections, has proved a very cumbersome type, because of the shortness of its life. Now the sand-clay road, or the soil road—which is only a type of sand-clay—has shown a substantial durability and a cheapness in first cost, and a cheapness in maintenance or second cost; consequently it is the best road for country districts, where conditions will permit. One of the best things about it is this: It is the most efficient in withstanding automobile traffic and the lateral traction or pull of the wheel seems to do little or no harm. Then again it is the easiest road on the stock of the farmer and the man who delights in driving. The elasticity of the roads removes that disagreeable feature of the macadam.

How would you build this sand-clay road? The first problem is to make a thorough investigation of natural conditions. Sand is the primary and the fundamental thing in the building of a sand-clay road. It is the all of a sand-clay road. The clay merely furnishes or forms a binder. The durability will depend largely upon the texture of the clay. If the clay is open and porous it will sponge up and lose its grip on the sand, and you have a slush or a muddy road, but if you have a water-resisting clay, and apply sand to the depth of 10 inches, you have a road that is easily kept in repair; more so than any class of macadam road, and at a cost that is very small in comparison.

How can you discover whether or not you can build sand-clay roads out of the material you have? Study the natural conditions of the roadway along the line it travels. I know in Mr. Small's district, where the clays are very porous in their nature, it is next to impossible to get a balance between the sand and the clay and get a resisting road. In the dry weather the sand will get loose, the dust forms out of the clay, and the roads become very troublesome and in the wet weather it becomes a slush. You take some of the clay in many counties and the clay seems to absorb it and hold it firmly.

The soil road comes in next for consideration. That has been discussed and in many cases has been thought to be a distinct type of road. That is not true. The soil road depends upon its efficiency, or its efficiency depends upon the fact that it is a composition of water-resisting clay and a mass of perfectly-mixed sand, which has been accomplished by the cultivation of the land.

The soil is turned over by a plowing process, brought to the surface, the rain removes the easily absorbed parts of clay, and leaves only that part which most firmly resists the action of rain; therefore when you put it in the

road, you get a cohesive mass that binds together almost like cement. Now really the trouble with the soil road is, if the material is right, you put it down too thin. You plow up 6 inches of soil and you say at once you have a foot of soil. It expands or opens up to almost double its volume. If you want a soil road of 10 inches, you must put down 14 inches of loose material, so that when it is firmly welded together you have a 12-inch road. If you build that strong enough, you will succeed, nine times out of ten. Continue that, and with the application of a machine, and in a few years' time you have a very satisfactory road, and at half the cost of the macadam.

Just a few words about sand-clay roads proper. You may take sand out of a stream and put it on a bed of clay, firmly compacted or rolled, and say the first layer is 4 inches, then put a thin layer of clay, then so much sand on top of that, and you get a sandwich road, as a friend of mine in Asheville termed it. In other words, you get a bed of sand on that clay. It likewise catches the clay which falls on the road, and the penetration caused by the rainfall goes down and the two lock and you have a firm, sand-clay road. Creek sand may be built after that fashion into a first-class road. Another method: Take a very muddy road, no matter how muddy; go to the creek, as I did this winter, take the sand out of the bed of the creek with a common drag and put it on the bank and dump it onto this mud. I remember on one or two occasions last winter attempting that process.

These are some of the simple treatments that one can make use of in the construction of sand-clay roads. The whole problem lies in this: Get the sand and the clay together in such form that you will get them as evenly mixed as possible, with even thickness and you have a permanent sand-clay road.

Q. What per cent. of sand do you suppose you put in with that clay?

A. At least 85 per cent.

Macadam Roads.

BY W. S. FALLIS, ROAD ENGINEER FOR IREDELL COUNTY.

The macadam road seems to be the road that is gradually being squeezed out of existence between the bituminous macadam and the sand-clay. I am building sand-clay roads just at present. What I want to say this afternoon is in reference to some phases of some of the macadam roads that have been built in our State. A great many failures have been occasioned by bad location. The location has been made in such a way that the roads could not be drained properly; the grades were too steep and the water-bound macadam had a tendency to wash on that account.

Another failure was occasioned by not only an improper selection of the stone, but by improperly placing the stone upon the road. The first stone applied should be uniformly crushed, and need not be so carefully selected as the top stone. The top stone should be of a uniform hardness, and as so many of the roads in the State have used the stone haphazard, and have put it on the road without any regard to getting the best results from the binding material.

Now the sand-clay is bound by the use of the clay, and if you use clay to bind the sand-clay road, you ought to use the sand-clay composition to bind the macadam road, then you will not have the stone getting loose and running off, and if you will use that in some of these western counties, you will

not have it picked up so much by the mud during wet spells of weather. These faults in the macadam construction are pretty general all over the State, and have a tendency to injure the macadam road wherever it is built, and have been the means of bringing the macadam into disrepute in our State. We have but little stone in the State with which you can build a first-class macadam road. We are almost absolutely without trap or limestone rock and our granites and the rocks with the sand in them, cannot properly bind without the application of this deep clay to keep the surface in proper shape.

Q. Is it practical or not, to attempt to build sand-clay roads with ordinary convicts?

A. Yes, sir.

Q. Is it economical?

A. That is a question that I could not go into at all.

Q. In building it with the machinery, don't you have to scatter them, so that it will take a good many more guards to protect them? I am asking for information.

A. I have never built, under my own supervision, any sand-clay roads with convicts. The use of convicts is very valuable in loading either the sand or the clay. You can put them in the pit and use them. I would say wherever you can concentrate the convicts and not have to have too much guard, it would work all right.

Q. I would like to know just what you think your macadam is costing you per square yard, and just exactly what you use, as to the binder.

A. As to the binder, I can tell you that, but I am not building any macadam at all. I use the crusher-run screenings of granite, usually. Whatever stone I use, though, I use the crusher-run screenings and add to that some 15 or 20 per cent. of finely-separated clay—dry.

Q. Do you think that in the ordinary North Carolina county it is feasible or proper to undertake to build macadam roads now, no matter how much stone you may have?

A. Only under certain conditions. That ought to be carefully worked out, and not left to the haphazard judgment of untrained men.

Q. What is the life of a soil road?

A. The life of a soil road depends altogether upon the quality of the soil and the character of the traffic over it. I have built some roads in Franklin County; one road has been built for two years, and after this hard winter, we have put that road back in condition at the rate of 50c a mile. A machine could make fifty miles right now.

Q. What is your opinion as to freezing on the sand?

A. It will injure it some, but that is one of the reasons why sand-clay is so fortunate in our climate—because we have very few winters

sufficient to hurt sand-clay roads, and I have built macadam roads that to the depth of 10 or 12 inches the ground would freeze and cut them up.

Q. What is the depth of the top soil on the top-soil roads you are building?

A. In Iredell they will finish up to 8 to 10 inches compact.

Q. That soil is being obtained from fields adjacent to the road?

A. Yes.

Q. Your squads of twelve men and twenty mules, with improved machinery, what would those men do in proportion to day labor without any machines? Would not twelve men with twenty mules, and proper machinery make more roads than you could make with 100 hired men with picks and shovels?

A. A great deal more than the same number of hired men. I don't know the proportion. No matter what class of labor you use—whether convict or free labor—they ought to be used with proper machinery to do the work, if it takes a guard for every convict.

Q. How do you keep the farmers off of it?

A. You have got to convince them that you are not doing them any harm, at first. But after they have a chance to raise a crop on that same piece of land, they realize you have not done them any harm.

Q. So far you have removed a great deal of top soil in Iredell County, from the lands of farmers?

A. Yes, sir.

Q. And you have had very little objection after they understood it would not injure their land?

A. Yes. And I don't think we have had to pay anything for any of the top soil, so far.

Q. Do you take the top soil at certain depths?

A. We take it at such points as we can get it suitable for the road and at such depths as it is suitable to the road.

Q. You don't go to the sub-soil?

A. We touch it sometimes, but even when we touch the sub-soil there is a great deal of the top soil left.

Dirt Roads.

BY JOSEPH HYDE PRATT, STATE GEOLOGIST.

When we stop to consider the number of miles of road in any county and compare this number with the small number representing the miles of specially surfaced road, we can readily see that it will a great many years—perhaps, generations—before all, or even half, the public roads are surfaced with macadam, or sand-clay. For this reason it is very important that we should give very careful consideration and thought to the construction and maintenance of the dirt road.

When properly constructed, the dirt road can be kept in good condition throughout nearly the whole year, except, perhaps, during periods of severe freezes and thaws. At the present time we have very few earth roads but what can be improved, and usually the question of the improvement is not a very difficult one to solve.

The old idea that *anybody* can build a dirt road is fast losing ground, and our people are beginning to realize that road construction, even of dirt roads, requires the services of men who have been trained in this line of work. As careful thought should be given to the construction of dirt roads as is given to the hard-surfaced roads; and in those counties which rely on just the labor tax for the construction of their public roads, a great advance can be made if this labor tax is utilized under the supervision of an experienced road engineer.

The location of any public road is the only permanent portion of the road; therefore, great care should be taken that when the road is once constructed there should be no question whatever regarding its relocation. In locating a road it should be done so as to permit of an easy grade—none over 4 1-3 per cent—and should be constructed so that it will readily shed the rainfall. How often we see a road going up a hill and down the other side, when, by building around the side of the hill, it could have been kept at an even grade, reaching the identical point within the same distance, or but a little greater.

If, in grading a road, we have any grades over 4 1-3 per cent, it will be necessary to construct across the surface of the road a V-shaped surface ditch to turn the water off the surface of the road, for if this is not done the water will, with the grade over 4 1-3 per cent, have momentum enough to seriously gully the surface of the road. No matter how carefully these V-shaped ditches across the surface of a road are constructed, they are very inconvenient to travel, are hard on the wagons, and should be avoided wherever possible. They can be avoided if the grade is kept below 4 1-3 per cent.

The dirt road is more susceptible to damage by water than, of course, any of the specially surfaced roads; therefore, great care should be taken to work out an efficient system of drainage for the road. Water must be kept away from the road, and the rain which falls on the road must be permitted to run off as rapidly as possible, and by a very easy grade. It must not only be taken off the surface of the road as rapidly as possible, but also out of the side ditches. Care should be taken that these side ditches are not too steep, and that every opportunity is seized for turning the water out of the ditches into the adjoining fields.

Many of our country roads are bad because in their construction no arrangement was made for taking care of the water, and thus they are very muddy and filled with ruts and holes. Instead of the middle of the road being higher than the edges, so that the water can readily run off on each side, many of them are flat, or even concave, with the center of the road the lowest point. If the road has been constructed so that it is well crowned, with the slope about 1 in 20 from the center of the road to the side ditches, and these ditches have been graded so as to readily take care of the water, and yet not steep enough to cause them to cut deep gullies on the side of the road, and if the water is taken from these ditches at every available point so as to prevent seepage of water under the surface of the road, there should be little difficulty in keeping the road in good condition. Very often it is necessary to carry the water from one side of the road to the other; and when this is nec-

essary, it should be done by means of either concrete, metal, or terra-cotta culverts or pipes which will carry the water under the surface of the road. After the system of drainage has been installed, provision should be made to keep it up, so that the drains and the culverts will not become stopped up.

The surface of a dirt road should be kept of dirt, and whenever any holes or ruts have developed in the road, they should not be filled up with stone, or brush, but with dirt, and with dirt as nearly as possible of the same character as the dirt composing the surface of the balance of the road. If, on the other hand, holes or ruts are filled with rock, gravel, or brush, the wearing effect will be uneven, and the wheels will begin to scoop and cut out holes just beyond or on the opposite side of the road from the hole filled up. If there are stumps or rocks in the road, they should all be removed, so that the dirt surface can be smoothed over and brought to an even slope from the center to the ditches. After the road has been well constructed and the right slope and surface obtained, it can be kept in this condition very readily by judicious application of the split-log or King drag. This simple road machine, if used regularly after a rain when the roadbed is wet, will smooth and shape up the road, so that as soon as it has dried out it will be firm and hard. The drag will fill up the ruts and holes and will keep the dirt road in first-class condition, with hard surface, throughout nearly the whole year.

As moisture is very detrimental to a dirt road, the sun should be permitted to strike the surface of a dirt road as much as possible; and, therefore, care should be taken not to have too much shade along a dirt road, and, where necessary, the trees should be cut away so that the whole surface of the road is exposed to the sun for at least several hours during the day. Shade is good for macadam road, but bad for a dirt road.

In repairing a dirt road the same thought must be given as in the construction of the road, and, when cleaning out ditches, the material should not be thrown into the middle of the road or on any part of the surface of the road, but it should be thrown into the adjoining fields; for this material is usually composed largely of fine silt and vegetable material, which holds moisture like a sponge and becomes very difficult to dry out, and is entirely different in character and consistency from the dirt surface of the road. How many times we have seen the dirt road repaired by this material being thrown up into the center or just beyond the edge of the ditch, thus preventing the surface water from flowing into the ditches, and, instead, turning it down the road!

In the maintenance of our dirt roads they should be divided into sections, with a foreman or overseer in charge of each section, whose duties should be to go over every mile of his section after every rain and at least every two weeks, and wherever he finds a portion of the road needing repair, he should have it done. After each heavy rain he should run a road drag over the road in order to bring it into shape and to fill up any ruts or holes that might have been started. We must bear in mind that roads will not maintain themselves, and that repairing a road simply once a year will not keep it in good condition.

In repairing a dirt road:

Don't fill up the holes and ruts in the dirt road with brush, with rocks on top, and a little dirt to cover the rocks; but fill up the hole with dirt of the same character as the balance of the road.

Don't throw all the refuse from the ditches into the middle of the road,

thus softening the surface and destroying the solid, firm bed that you have obtained by previous work; but throw this material out on the opposite side of the ditch.

Don't leave the center of the road the lowest point; but make it the highest and give the surface of the road a slope of about 1 in 20 to the side ditch.

Don't carry the water across the surface of the road from one side to the other; but carry it by means of culverts underneath the road.

Don't have grades on your road over 4 1-3 per cent; for if you do it will be necessary to build V-shaped surface ditches or "Thank-you-mam's" across the road.

Don't, in working out the labor tax on the roads, try to make a holiday of it; but give an honest day's work on the road. Let us eliminate what is often seen in those sections where the roads are maintained by the labor tax—ten or twelve men and an overseer, a little gray mule, a small plow, six dogs, three or four guns, and a few tools which often are not considered worth using at home. This road force is not only hard on the rabbits, but also hard on the roads.

Don't reject the split-log drag because it is a cheap road machine, but use it constantly, for it is the most efficient road machine that we can use in maintaining the dirt road.

MORNING SESSION.

FRIDAY, AUGUST 2, 10:00. O'CLOCK.

THE PRESIDENT: The first number we have on our program this morning is an address by Mr. W. S. Wilson, Corporation Clerk, on State Aid for Road Construction.

State Aid for Road Construction.

BY W. S. WILSON, CORPORATION CLERK.

The problem which confronts you as members of the North Carolina Good Roads Association and every other advocate of good roads is a twofold one. Your first duty is one of education—to show the people the advantages to be derived from good roads and prove to them by argument and example that it is to their interest to have them. Your next duty, and I contend that it is the most important of all, is to assist in providing by proper legislation the means whereby good roads may be built and maintained by the cheapest and most equitable and most feasible plan. North Carolinians are reasonable and reasoning people, and it is to these qualities your appeal must be made if it is to bear fruit.

Road building, in any sense of the word, is an expensive undertaking. Money in large quantities is necessary. The people are very much more easily convinced of the advantages to be derived from good roads than they are of the advisability and the necessity of paying for them. While we may agree that "no road tax" is a much heavier drain upon the people than a road tax properly expended, it is a hard lesson to teach to those who are not seeking to learn.

The main question then is not "Shall we have good roads?" but, "How shall we get them?" This brings us squarely to the point of getting the

money needed for the purpose. A state or a county having no assets except its credit can raise money but in one of two ways—by direct taxation, or by a bond issue.

Our State is largely an agricultural one, with few large towns, and in most cases, therefore, to raise sufficient money for road purposes by direct taxation is a hardship on the people, and, in consequence, but few counties have built roads by that method. These are the wealthier ones, and good roads have added further wealth, so that they have outstripped the poorer counties by all odds. As there are a great many more of the latter class, I have tried to devise a plan by which they might profit. Such counties might, and in most cases probably could and would raise sufficient revenue for maintenance were roads once built, but how to get them built in the first instance in these counties is the question to be solved. Since the necessary funds cannot be secured by direct taxation there is but one other way, viz: by bond issue. Just here the question arises as to what part, if any, the State should take in county road building. There are those who hold that road building is a local question and should be cared for by the county or the road district as a unit, and be kept separate and apart from state aid or control, but in the more progressive states this theory has been abandoned and road building has been made a state and not a local issue. I believe the time is fast coming when that theory will prevail in this State, and I further believe that when it does prevail we shall have made a long stride towards the solution of one of the greatest problems we have confronting us.

The State, owing to its limited resources, cannot make direct appropriations from its treasury for road building, either for building outright or upon a cooperative basis. The plan in use in Virginia, New York and other states by which the state issues bonds and furnishes so much money per county if the county will vote a like amount, is good for the counties that take advantage of it, and the knowledge that unless a county does vote for a bond issue it receives no benefit, is doubtless a stimulus to make votes "For Bonds." At the same time it is manifestly unfair to the counties which do not vote such bonds, for the reason that the no-bond counties are called upon to pay their pro rata part of a public debt, which is of no benefit to the people of those counties. It has been my purpose, therefore, to prepare a plan by which only those counties which secure a benefit shall bear the cost and those counties which are not benefited shall not be called upon to pay for improvements made in another county.

With this idea in view and believing in bond issues for roads, I began a study of such statistics as I could find, and was at first surprised at the small number of bond issues which had been made for this purpose. Realizing that there must be some good reason for the failure of the people to avail themselves of the advantages to be obtained by such a course, and knowing full well the universal prejudice against such issues, I began to find out a number of very startling things—things which go far towards making any one who will stop for a moment and think, see that there is more real reason for general opposition to bond issues under the law as it exists in this State than the good roads enthusiast is likely to realize. There is more truth in the oft-given answer of a solid headed farmer "That he doesn't feel that he has a right to vote a debt upon his children and grandchildren" than we are likely to admit. And this is the fault of the system under which our bonds are issued. A bond issue becomes in most cases—certainly more than 90 per cent of them—a permanent debt upon which interest must always be paid and

the principal is never paid. No method of repayment is provided for and it becomes an everlasting load for the people to carry.

On October 23, 1911, I sent a letter to the Registers of Deeds of the several counties of the State asking for information as to the bonded indebtedness of the counties and asked these questions:

- (a) Amount issued.
- (b) For what purpose?
- (c) Rate of interest.
- (d) Amount collected on sinking fund.
- (e) Date of maturity.
- (f) How sinking fund is invested.
- (g) Have refunding bonds been issued? If so, give amount and date of issue and rate of interest paid.

A majority of the officers addressed responded promptly, and in nine cases out of ten reported that no sinking fund had been provided where bonds had been issued, and the average rate of interest paid is from 5 to 7½ per cent. To be more explicit, let us take this good county of Mecklenburg. According to the report of the register of deeds, in 1870, this county issued bonds for \$300,000, for what purpose he did not state, to run for twenty years, bearing six per cent interest. From 1870 to 1890 these people paid their taxes which included every year \$18,000 interest on this loan. In 1890 the bonds became due. They had paid \$360,000 interest and the principal remained the same. There was no fund to pay them off, and another \$300,000 in bonds was issued for thirty years, and sold at a like rate of interest, making a total payment to this date of interest alone, of \$756,000, besides the cost of collection and disbursement, and the original loan remains undiminished. By 1920 when these bonds become due, these people will have paid \$900,000 in interest, and will still owe the amount they borrowed in 1870. There is no end to it. Can you blame a man for hesitating before casting his ballot for a bond issue when he knows what it means? There must be something radically wrong which permits such an extravagant, wasteful state of affairs to exist. There are numbers of similar illustrations which I might give you if time permitted. This may be an exceptionally grievous example, for in some, in fact in most cases, the rate of interest has been less, and provision has been made in some cases for the establishment and proper investment of a sinking fund to retire the bonds at maturity. But sinking funds as handled at present rarely sink in the proper sense, but more often become a political football to be kicked and tossed from one dominant faction to another—and they always suffer in the process, and in some cases through improper handling are lost altogether. What more frequently happens is that the Board of Commissioners, or other governing authorities will borrow this fund for general expenses with the promise expressed or implied, that it will be returned at a more convenient season, which said season rarely arrives, and when the bonds become due the sinking fund is nowhere to be found, and a new bond issue becomes necessary, and the people pay the price. This is not the fault of the county commissioners of the State, for they are as a class our best citizens, but it is the fault of the system. To meet the problem of raising money by bond issue the system must be changed. Under present conditions road money or any other money raised by bond sales costs too much. It was to remedy this condition and to make sure of the wiping out of the debt incurred at a fixed time, and to secure a better rate of interest that the bill embodied in this paper was prepared and introduced at the last session of our General As-

sembly. It is a condition that is to be met—not a theory—and a remedy is needed. When this problem has been solved the problem of good road building from a financial point of view, which is the most important point of view, will have been solved also. There is nothing new or radical in the idea. It is simply an extension of an old idea into a new field. With a given condition which needed a remedy, I set about to find a remedy. I knew that there must be some methods by which state bonds could be used to advantage in assisting in road construction in the counties without affecting the state's credit or crippling its revenues. Having in mind the building and loan idea for which all North Carolina must thank the progressive people of this city, and having seen the principle applied in the Educational Department of our State, where a sum was set aside to be loaned for building school houses, and knowing the plan had worked successfully there, I began to work out a system for road bonds and the following bill embodying that principle, is the outcome. The bill was endorsed by this body, and introduced at the last session of the General Assembly where it was reported favorably by several committees, and passed the House of Representatives by a practically unanimous vote, and was defeated in the Senate by only three votes, after a two-days fight. The following is the bill* in full, as amended by the Committee, and introduced into the General Assembly:

SUGGESTED LEGISLATION FOR PROVIDING FUNDS FOR THE CONSTRUCTION OF PUBLIC HIGHWAYS.

The General Assembly of North Carolina do enact:

Section 1. That for the purpose of assisting the several counties composing the State of North Carolina in their construction of public roads the State Treasurer is hereby authorized and directed to issue bonds of the State of North Carolina, payable forty years after date of issue of said bonds, which shall be the first day of July of each year beginning with the first day of July nineteen hundred and eleven, to an amount not to exceed five hundred thousand dollars annually, and all said bonds shall bear interest at a rate not exceeding four per cent. per annum from the first day of July of the year they are issued until paid, which interest shall be payable semi-annually on the first days of January and July of each and every year so long as any portion of said bonds shall remain due and unpaid.

Sec. 2. That the proceeds received by the State Treasurer from the sale of the bonds authorized in this Act shall be loaned to the several counties of the State of North Carolina, as hereinafter provided, to be used by said counties in the construction of macadam, sand-clay or other surfaced roads as approved by the Highway Engineer of the Highway Division, if such is established by the General Assembly, or by the Highway Engineer of the North Carolina Geological and Economic Survey.

Sec. 3. That the proceeds from sale of the bonds authorized in this Act shall be allotted to the several counties composing the State of North Carolina in proportion to the amount of taxes that the said counties pay into the State Treasury, and any amounts allotted to counties

* This is the bill and these are the tables which have been used and referred to by Mr. P. D. Gold, Jr., in the articles which he has published and for which he claims credit. As a matter of fact, neither the bill nor the tables were seen by Mr. Gold until after the adjournment of the General Assembly, when he came to me and borrowed them for the purpose of preparing a paper for publication in *Southern Good Roads*.

that are not applied for by the counties for which allotted within six months after their allotment shall be re-allotted, and loaned amongst the other counties.

Sec. 4. The counties accepting the said loans from the State Treasurer shall pay to the State Treasurer each year five per cent. of the amount loaned by said Treasurer to said county, which amount shall be payable semi-annually on the first days of January and July of each and every year for a period of forty years from the date of the loan. Of the said five per cent. paid by the county to the State Treasurer, four per cent. is to be used by the State Treasurer to pay the State's interest on the bonds issued to cover said loans, and one per cent. is to be retained by the State Treasurer as a sinking fund with which to redeem the bonds issued at the end of forty years when said bonds mature.

Sec. 5. There shall be levied in each and every county accepting a loan or loans, as provided for in this Act, a special annual tax for a period of forty years to be known as the "Road Loan Tax," which shall be sufficient to pay, and shall be used in paying the annual interest on the loan, said interest to be paid by the treasurer of the county to the Treasurer of the State of North Carolina semi-annually on the first days of January and July of each year. As collateral for said loan made by the State of North Carolina to the county, the County Commissioners shall issue county bonds to the amount of said loan, and deposit same with the State Treasurer to be returned to the county at the end of forty years.

Sec. 6. No county shall be allowed to borrow money under the provisions of this Act to an amount exceeding five per cent. of the assessed valuation of the property of the county.

Sec. 7. Any county accepting a loan under the provisions of this Act from the State of North Carolina shall expend this money in the construction of macadam, sand-clay or other surfaced roads, which shall be located, constructed and maintained under the supervision of the Highway Engineer of the Highway Department, if such is established by the General Assembly, or the Highway Engineer of the North Carolina Geological and Economic Survey.

Sec. 8. That the bonds authorized and directed to be issued by Section 1 of this Act shall be coupon bonds and of the denominations of five hundred dollars (\$500) and one thousand dollars (\$1,000) each, as may be determined by the said State Treasurer, and shall be signed by the Governor and the State Treasurer, and sealed with the great seal of the State. The coupons thereon may be signed by the State Treasurer alone, or may have a facsimile of his signature printed, engraved, or lithographed thereon; and the said bonds shall in all other respects be in such form as the said State Treasurer may direct, and the coupons thereon shall, after maturity, be received in payment of all taxes, debts, dues, licenses, funds and demands due the State of North Carolina of any kind whatsoever which shall be expressed on the face of said bonds. Before selling the bonds authorized to be issued, the Treasurer shall advertise the sale and invite sealed bids in such manner as in his judgment may seem to be most effectual to secure the best price. He is authorized to accept bids for the entire issue or any portion thereof, and where the advantages are equal he shall give the preference of purchase to the citizens of North Carolina; and he is authorized to sell the bonds

herein authorized in such manner as in his judgment will produce the best price.

Sec. 9. The said bonds and coupons shall be exempt from all State, county or municipal taxation or assessment, direct or indirect, general or special, where imposed for purposes of general revenue or otherwise, and the interest thereon shall not be subject to taxation as for income, nor shall said bonds and coupons be subject to taxation when constituting a part of the surplus of any bank, trust company, or other corporation.

Sec. 10. If the bonds issued under this Act are sold as bearing less than four per cent. interest the State Treasurer is hereby authorized to loan said amounts of bonds to the counties at an increase of one per cent. over the per cent. that the State has to pay.

Sec. 11. It shall be lawful for all executors, administrators, guardians, and fiduciaries generally to invest in said bonds.

Sec. 12. This Act shall be in force from and after its ratification.

My whole plan is based upon the fact that in this State the bonds issued by the state are exempt from all state, county or other taxation, regardless of the holders or in what capacity held, whether as a part of the surplus of a bank or as a guarantee fund of an insurance company or otherwise; whereas county, district or municipal bonds of any character are subject to taxation. There is therefore a difference in the value of such bonds, and this is shown in the rates at which the two kinds of bonds may be floated. The State can and does sell its non-taxable bonds readily at four per cent, whereas county, district and municipal bonds range from five to seven per cent, but the prevailing difference is certainly as much as one per cent. It is to take advantage of this difference and at the same time to prepare a plan by which a sinking fund can be created and cared for for county bonds at maturity, that this bill was drawn. It provides that on January first of a given year the State Treasurer shall be authorized to issue and sell State four per cent bonds, interest to be paid semi-annually to an amount not to exceed \$200,000, to be determined by the applications received by him before such issuance. The bonds are to run for a period of forty-one years. The steps preliminary to such application for road funds, including the method of voting in the county are set out in the bill, and must be regular in every way and be approved by the Attorney General. Taking for granted that enough counties have applied to take the whole issue of \$200,000 for use on roads in the following six months, the Treasurer issues state bonds to that amount and the proceeds arising from their sale are loaned to the counties upon proper proof of having voted "For Good Roads," and the execution and delivery to said Treasurer of a bond duly executed by the proper officials binding the county or district to pay to the Treasurer five per cent per annum on the amount loaned, to be paid semi-annually at least one month before the interest is due on the outstanding State bonds. A penalty for failure to pay within the specified time is provided which would amply reimburse the State for any advance payment it might have to make on its outstanding bonds. Both interest and penalty are made a State tax and the Treasurer is given every facility for its collection that he had for the collection of any other State tax. It might be argued that \$400,000 per year is not a sufficient amount to meet the requirements. In answer to that I would say that this

is a larger sum than has been raised upon an average by bond issues for road building in the years heretofore, and furthermore the amounts raised under the present bond issue plan are rarely ever all used in one year, but it takes often several years to use them advantageously. Whereas under the proposed plan when it is known that an additional amount may be had in six months this sum will go farther than would appear upon first thought. The counties, too, would have the additional advantage of not being required to pay interest upon the money until it was actually ready to use it, besides a further advantage of having only so much as could be used during a fixed period, for a large bank account will not make for economy any more with a board of road commissioners than with an individual.

So far the State has issued \$200,000 four per cent forty-one-year bonds, has sold them and loaned the proceeds (\$200,000 certainly, as our Constitution prohibits a sale for less than par) to the counties applying therefor, and has taken in lieu thereof \$200,000 of county bonds—or rather guarantees to pay five per cent interest on the several amounts for a like period. The county bond is not one that can be stolen and at maturity presented for payment, but it is an undertaking on the part of the county to pay to the State Treasurer annually—in two payments—four per cent to be applied towards the payment of the interest on its outstanding bonds and an additional one per cent to be invested by the State in a sinking fund to retire its bonds at maturity.

At the end of the first six months the counties pay to the State Treasurer two and one-half per cent on their respective loans—being a semi-annual payment of five per cent interest. This amounts to \$5,000. Of this amount the State Treasurer takes \$4,000 and pays the interest on the outstanding State bonds, and has a surplus of \$1,000. Then to get his \$200,000 to be loaned to the same or other counties upon the same terms as at first prescribed, the Treasurer puts this \$1,000 into the road fund and issues \$199,000 in bonds and sells them, and the proceeds arising therefrom are added to the \$1,000 sinking fund and the whole amount is loaned in the same way as at first indicated. At the end of the first year five per cent is collected on \$400,000, whereas interest is paid on only \$399,000. This process is continued semi-annually for forty-one years, and at the end of each six months the bond issue is reduced by the amount of the surplus, so that the two shall aggregate \$200,000. For the first few years the surplus will grow very slowly, but as the years pass it will be seen by the tables attached to the bill that it climbs very rapidly, so that by the end of the forty-first year it has reduced the bond issue to nothing. Then the first state bond becomes due. By reference to the tables again, it is seen that there is a sufficient income from the county loans to pay the interest on the outstanding state bonds and still leave a sufficient amount to pay off the first two hundred thousand dollars in state bonds. And by a further study of the tables it will be seen that each succeeding issue, always decreasing the amount, will be retired in the same manner. The counties borrowing the money will have paid but five per cent per annum, yet their debt will have been discharged and the state as such will have paid nothing except for the sale of the bonds and for the bookkeeping. It will have loaned its credit only, and in return will have reaped an abundant harvest by way of additional taxes from increased property values.

But some one may say that the State is assuming too great an undertaking when it proposed to raise \$400,000 per year for forty-one years—a total of

\$16,400,000. One who has faith in the future of the State must admit that in that period this amount and more will be expended on roads. If the several counties will do it with the present bungling and ineffective methods of repayment, is it not the duty of the State to save them from themselves before they become practically bankrupt by taking on burdens which under the present policy become permanent? And furthermore, the State will have issued less than \$11,000,000 of its bonds, the difference being made up of the surplus accumulations, while it holds the gilt-edged securities of the counties for the full amount, which makes this particular class of State bonds a more desirable investment than the ordinary State bond which is sold only on the credit of the State.

Another may say change the Constitution so that counties may sell non-taxable road bonds. This would meet the situation only half way, for the present trouble lies not so much in the greater rate of interest as in the lack of a proper method for providing and investing a sinking fund for the retirement of the bonds at maturity.

To refer again to the example of Mecklenburg County used earlier in this paper, where it is shown that the county has paid on a \$300,000 bond issue, originally made in 1870, up to this time, \$756,000 in interest, and still owes the principal; it has been forty-one years since this issue was made. Suppose this plan had been used at that time. The county would then have paid \$15,000 per year for forty-one years, or until one year ago, a total of \$615,000, and *both interest and principal* would have been paid. As it is they have paid \$141,000 more than this amount, and still owe the principal.

The adoption of a plan of this kind is not a fitful appropriation for a popular cause, but it is the adoption of a policy, just as was the first appropriation to public education the adoption of a policy. No one ever expected that appropriation to be less. Every thinking man knew that it would be increased as the ability of the State increased, and as occasion demanded. It has increased, and who opposes it? If it could do so, it would be well for the State to appropriate money from its treasury for road building as it does for public schools; but its revenues will not permit this. The next best thing to do is to assist those counties which desire to forge ahead of their more lagging sisters in obtaining money at the lowest possible cost for this purpose. Under this plan the State spends nothing, but endorses only, and has ample security besides. It gains in tax receipts upon the investments made by the counties. The counties themselves are enabled to get money at a greatly reduced rate of interest and their sinking fund is handled and invested under State supervision, so that they are not required to perform the impossible task of collecting, handling and investing it so that it will mature their obligations, and a county bond issue is changed from a permanent debt to be handed down from generation to generation to a fixed yearly payment for a definite number of years, long enough to keep the load from resting too heavily at any time, and as short as accumulative compound interest can liquidate the loan.

So much for the plan theoretically. Practically, there are certain happenings which will not conform to any rules of arithmetic. On some occasions the demand for money will exceed the supply. The bill provides that in that case a pro rata reduction shall be made. This is necessary only for the purpose of limiting the amount to be used in any one period, and not because the theory is not good for a greater or smaller amount one year with another. If all the sum available should not be needed, invest the sinking

fund first, and let the shortage appear in the semi-annual bond issue, and it balances in the end. In other words, when the time comes to retire the State bonds, there will be enough money to do it, though on one paying period there will be a deficit, and on another there will be a surplus, accordingly as the bond issues have been long or short.

Bonds will not be issued in fractions of \$100 as shown by the tables, but issued to the nearest \$100 and the excesses and deficits will balance.

If for any reason a series of bonds cannot be sold for par, and therefore not at all, there will be disappointment for some people and loss of income in the years to follow, but there is no pay-day for the bonds that are not issued.

To sum up: This plan gives cheap road money to the counties; does not cost the State a dollar, except bookkeeping and sale of bonds; it makes use of the State's credit for which it is amply repaid by increased taxes, hurts nobody, helps the county and State, and does away with as criminal a brand of wastefulness in the form of present-day sinking funds as the mind of man can well conceive of. It makes certain the period and the amount to be paid, and pays both principal and interest with a sum very much less than is now paid for interest alone on a never-ending debt. It enables you to tell the people that the State is interested in their welfare and progress, and is lending its aid to that end. With your active and earnest coöperation this bill can be enacted into law, and when this has been done you will have inaugurated a system of road building by State aid which will bring untold comfort, happiness and wealth to the people of North Carolina.

Uniform County Road Legislation.

BY PROF. M. H. STACY, OF THE UNIVERSITY OF NORTH CAROLINA.

Mr. President, Ladies and Gentlemen:—There is an old adage that I think we can all accept as true, that a chain is no stronger than its weakest link. Whether that is applicable to all conditions that arise, it is certainly true that a highway is not more serviceable than the worst portion of it. A farmer who lives ten miles from the market, five of which are good and five bad, must load his vehicles and burden his stock according to the five bad miles. From a practical standpoint the five good miles do not yield practical results. So it is not hard to see that in building highways the word "uniform" needs emphasis, and the committee has asked me to speak to you this morning upon the necessity of uniformity in our county legislation for roads. Will you go with me just a moment and look at the present status of the road laws in North Carolina? Now I am not here to throw any mud nor to indulge in any unjust criticism, and I ask you each to look at it as it actually is. We have a few counties in North Carolina, let it be said to their credit, which have felt the thrill of progress, and which are making great strides in building highways. The citizens of these counties are here at these conventions and are wearing the emblems from that county. They ought to be worn, but, if you please, that is at one end of the scale. At the other end of the scale in North Carolina to-day we have counties that are working their roads entirely by free labor. That is, the roads of the entire county are built by the labor of the men in that county, from the ages of eighteen to forty-five, by working four days a year on the public roads, and it generally has this saving clause, that in the case of a storm or a freshet,

the four days may be increased to six days. Now how many miles of road will that system build? And in between these two extremes we have the compromise system on the principle, I suppose, of the farmer who wanted to raise his hogs with a streak of lean and a streak of fat; we have the counties that have the small tax, and, superadded to that, the free labor idea. If I could throw on the screen here this morning a picture of the actual working road conditions in three different counties of North Carolina, I could show you the most striking contrast in interest that you can imagine. All the way from the county that has no tax at all to the county whose roads are worked entirely by taxes. All the way from the county that uses its convicts under the intelligent direction of a road engineer, to the county which works its roads through the feuds and strifes of local politicians.

I was in Alabama a few weeks ago, and some of my friends were bragging on the State of Alabama. They said it was simply bristling with progress. I listened at them a few moments, and after they had finished I took my cue from the *Charlotte Observer* and bragged a little on North Carolina, and after I got through if they believed half of what I had said, they believed that Alabama was an ox cart and North Carolina an automobile. (Applause.) But I am here this morning not to indulge in that kind of talk. I want us to face, not things as they ought to be, but things as they are, and to inaugurate a system that shall go from things as they are to things as they ought to be.

Now let's make a little more intensive study. I am not going to pick out any particular county, but so far as my knowledge goes and from my study of the conditions within the county, you will find about this condition: Over here is a township that has the greater part of the wealth of that county. It has several manufacturing plants, several roads, and they will raise a road fund by a small tax, most of which is paid by these enterprises, and just adjoining it is an agricultural township, sparsely settled, good people, but poor. Whenever you propose a uniform system for that county you are at once going to be met with this objection: We might build roads, provided you would spend the money in proportion to the taxable property in the respective townships. There was a bond issue voted in Union County some time ago in which the provision was in the bill, that the amount of the bonds should be spent in proportion to the valuation of the taxable property of the respective townships, and it was defeated. The same thing is true in other counties.

In another case such a storm of protest was raised that the commissioners, prior to the bond issue guaranteed that at least two-thirds of the money raised from the issue should be spent in the respective townships.

I believe the people of the State are just as earnest and far-sighted and patriotic as any people in the world, but I do not believe that we can ever build a perfect system of good roads in North Carolina; I do not believe that the object of this Association can be attained—whose object is to provide a good road in every county in the State 365 days in the year—by prorating the money in the respective counties in proportion to the taxable property in the respective townships. (Applause.)

We have been acting in the counties of North Carolina, not upon the principle which I believe is as sound as can be—that he who gives shall receive again; but we have taken David Harum's version of it and say: "Do unto others as they do unto you, and do it first." (Laughter.)

Now, ladies and gentlemen, that is the situation in North Carolina as I

see it. Plainly and simply a striking study in contrast. The objects of this Association are the unification of the system.

There are three fundamental things necessary to build good roads, and wherever you get those three things together you can build them, and wherever one of them is lacking you cannot build them: First and foremost is brains; second, money; third, organization. This Association will never be effective in reaching its desired object until we can utilize those three phases in North Carolina.

The first requirement is brains. What do you suppose would be the status of the judicial system of North Carolina if we had no Supreme Court; if there was a judge only in a few counties of North Carolina, and that all the balance of the judicial machinery in the State was carried on by local magistrates? What do you suppose would be the execution of the laws of North Carolina if we had no Governor, if only a few of the counties had sheriffs, and all the remainder of the execution of the laws in the various counties was carried on by township constables? What do you suppose would be the effectiveness of our public school system in North Carolina if we had no Superintendent of Public Instruction and only a few counties had a county superintendent of public instruction and in the remainder of the counties all schoolmen were elected by local committeemen?

Now, as strange as it seems and as paradoxical as it sounds, that is exactly the condition that faces us in North Carolina in road building. With all the counties of this State we have no organized head, and yet we have pledged ourselves to do all that we can to promote the construction and maintenance of a good road in every county every day of the year.

Now I am going to outline very briefly what I think is necessary in order to reach an effective policy and effective system and effective organization in the construction of good roads in North Carolina. We need a thoroughly efficient and competent State Highway Engineer. (Applause.) I care not who he may be; let's get the best possible, and put under his big brain the direction of the construction and maintenance of the roads of North Carolina. (Applause.) We do that in every other phase of the State's life. We have it in our judicial system, in our executive system, in our public school system. Under this State Highway Engineer I think that the State ought to be divided into highway districts. Ultimately I think that there will be as many highway districts as there are counties in the State, but at present I do not think that would be feasible, but we might have five or ten highway districts, with a superintendent for these districts, and each of these superintendents under the direct superintendence of the State Highway Superintendent, or, if you prefer, three men instead of one—a State Highway Commission. And then, where conditions will justify it, that there should be in each county a County Highway Superintendent. All of these men directly responsible to the head authority, who shall have his office at Raleigh.

That is just a rough outline of what I conceive to be a system that could control and utilize the brains and the money of North Carolina.

I have not come here to make any criticisms of the way money has been spent. It may be that there has been some money spent unwisely in the State, but I have yet to find in a single instance, so far as I have been able to find out, where money has been dishonestly expended; but I plead for a uniform system of county legislation, or rather, for a *system* of county legislation; and to make it flexible enough so that the counties of more

wealth shall be enabled to receive more assistance from these State officials, I need not tell this Convention that any scheme of that sort would be met with vigorous and determined opposition.

I come to this Convention right fresh from the field of battle. There are some mighty good people in this old North State, who are willing to stay right where their fathers were, and any set of men who undertake to bring order out of chaos, to put organization where confusion has existed, will find they have a task worthy of the bravery of any soldiers that ever went on a battlefield. (Applause.) But those men that pledge themselves to harmonize those three great factors in North Carolina, through the medium of an efficient and intelligent organization, will, to my mind, do as much in our generation as our fathers did in theirs; and I believe a State Highway Superintendent, if he is the right man, can mean as much to North Carolina as the Governor of the State. (Applause.) That is said in no sense as reflecting upon the integrity and the patriotism of the worthy men who preside at the executive mansion. We are already pledged to a great issue. We are in the midst of a great fight. The problem before us is one of organization, and that man or that set of men who introduce order and system can bring about beneficial results in the upbuilding of North Carolina, and they will be a Moses in the Twentieth Century. (Applause.)

The County Bond Issue.

By HON. R. D. DOUGLAS, PRESIDENT GREENSBORO CHAMBER OF COMMERCE.

Mr. President, Ladies and Gentlemen:—Guilford County was the first county in the State, I believe, to vote a good roads bond issue. We blazed the trail. That the other counties are following in such large numbers is a source of gratification. Our own experience in that line has been to us eminently satisfactory. When some of our enthusiasts—as we were then called—nine years ago told the people of Guilford County that if they voted that \$300,000 bond issue their taxes, then assessed at eight and one-half millions would increase to twenty millions in ten years, they thought we were crazy. Instead of increasing to twenty millions in ten years they have increased from eight and one-half to twenty-six millions in nine years. (Applause.) Today the increased taxes which Guilford derives over what it derived then, an increase which we think very largely due to our good roads bond issue, amounts to about eight times the interest on those bonds, to say nothing of the fact that we are absolutely up to the minute on our sinking fund. (Applause.)

We folks in Guilford County are no better than anybody else. There are a few more of us than there are in some counties, but what can be done in one place, can be done, to a certain extent, in another—certainly in any county in North Carolina. We all admit that good, sound theory must precede good practice, but practice is necessary. Theory can go so far and then practice must take it up. To paraphrase slightly the words of a distinguished American in considering this road business, it is a condition no less than a theory that confronts us. One thing that makes this difficult is that, unfortunately this good roads building is, like any other human endeavor, expensive. Somebody has to pay the bills, some time, and we might as well look that fact straight in the face. We cannot get good roads for nothing, and we need not try. It simply resolves itself into the proposition

of whether they are worth the money as an investment, and I think we will answer that in the affirmative.

The next proposition is, how are we going to get the money? Two theories I presume cover the whole ground: a direct taxation, building your road as you go, or a bond issue. Now what Mr. Wilson said about State endorsement of the counties must appeal very strongly to us all, and what Mr. Stacy has said about uniformity is certainly a very strong point, but after all, in the present state of the game, local improvements must be made largely if not conclusively by local people. You must have some local unit upon which to act.

Now there have been occasions when this local unit was made the township; when the township has acted. I need not repeat what Mr. Stacy said. If you cannot get it any other way, I presume a township bond issue is better than nothing, but certainly the county, which is our public unit in all of the public matters in North Carolina, it seems to me is the proper unit to take up this question; to pledge its credit, and to expend money upon the question of good roads. Now the old "pay-as-you-go" proposition is mighty good when applied to the question of the living expenses of the individual and, let me say here that there is not so much difference between the economic principles which should apply to the individual and those principles which should apply to a county, composed simply of many individuals. If an individual borrows money to pay running expenses, he soon goes to the bad, and the same with a county. But with regard to permanent investments, I think with the individual, as with the county, the proposition is entirely different. I am aware of the fact that in North Carolina bonds have not a very good reputation. We have had some very unfortunate experiences with some bonds, about a generation ago, and every now and then they still rise up, but I do not think it fair for us to allow a few black sheep of the bond family to ruin the reputation of the whole bond family, and to say that because we had a disastrous experience with some bonds, that they are all wrong. They are not all wrong. In the first place, good roads are a permanent investment. We cannot do it by direct taxation. It costs more to build a house piecemeal than all together. It costs more to build roads a step at a time than it does to borrow your money and build your road as far as your money will go, and have the road, and it seems to me the proper solution of this good roads question is the county bond issue. As to how much that bond issue should be, you cannot make hard and fast rules to cover. One county may need a certain amount, and another county another amount. In Guilford we voted \$300,000. Now we have made it \$600,000. Leaving out the question of amounts, we come down to the practical proposition as to how we are going about getting that bond issue, and how we are going about spending it. My observation has been that the most difficult problem in connection with a bond issue for roads is the question of partisan political prejudice. I am not throwing stones at one political party more than another. In partisan matters I am just about as mean on one side as my friend Varner there is on the other. Our experience in Guilford was that the first thing we did was to arrange matters so that there could be no question of one party attempting to make political capital out of the other party voting a bond issue. Either one will do it, and if your parties are equally divided in your counties, you will find the minority party can muster enough votes to kill your bond issue, if it is made a political question; but if the matter is handled right, it seems to me it can be so arranged that that phase

of the matter need not come up. In determining upon a bond issue, another thing should be that you will not have one part of your county played against the other part. Some rich townships may be inclined to say that they will not get their part of it. The universal rule is that no part of a bond issue is to be spent in incorporated towns, that part of your county pays between 85 and 86 per cent of the total taxes of the county. Not one dollar of our \$300,000 has been spent in either of those two towns, and yet to-day were there another vote on the matter, I venture to say the two towns would give us a larger majority in favor of the bonds than the rural districts would. (Applause.) We feel that we have benefited just as much as any part of Guilford County. When we voted on it the big majority was in Greensboro and other parts of the county, and the thing to work out is that there will be no sectional issue.

As to the other good roads bill for bonds, voicing merely a personal opinion, it strikes me the best way to do it would be for this Association—I am not trying to side-track Mr. Wilson's bill, but going with it it seems to me—this Association might very well draw up a bill, present it to the next legislature and have that bill passed, providing that under certain conditions any county in the State might, if it saw fit, hold a bond election, giving to the counties at the same time the option, if they saw fit, to have a bill for their own county. That State bill, I should say, ought to provide the percent of voters who must sign the petition, and it should limit the amount of the bond issue. I should say the best way in regard to the amount would be to say the county should not issue exceeding a certain percent of its taxable valuation, and not less than another per cent. Whatever is worth doing at all, is worth doing well, and you will usually find, if you split your bond issues up too much, you will have, in the long run, more trouble than if you go at it right in the first instance, and vote enough money to issue bonds to make a decent show. It should go on further and say how that money should be expended. The way we did was to put the spending of that money under a Highway Commission, composed of six members, elected for six years, with two men going out every two years, so that there could not be a full membership on the board of inexperienced men. These six men are elected by the county commissioners and have office for six years, rotating two new ones every two years. They must be of non-partisan character. At least two of the six must be of the minority political party. They spend the money and have entire charge of it.

In regard to the designation of the roads to be worked—and I will say I think it a great mistake in your bill to designate what roads you intend to improve—this was decided by a joint meeting of the five County Commissioners, and the six Highway Commissioners. They heard statements made by citizens of the county and considered the matter and designated what roads were to be improved; then the Highway Commission went ahead and did the work. If any one knows a better way, why, adopt the better way, but I think this general bill should specify the machinery for carrying on the work, then let each county have the privilege of working under that bill, or, if it saw fit, let it have the privilege of a bill of its own.

North Carolina is very homogeneous in regard to its population, more so, I suppose, than any other State in the Union. We are, however, unfortunately situated, in the fact that with a homogeneous people we have a perhaps wider difference in topography than any other state. Conditions governing road building methods and the manner of spending money could not be the same

for all sections, for methods suitable to the sand country of the East would be totally out of place in the rocky counties of the West. Hence it might be well to have a general bill under which a bond issue could be voted and leave the details of its expenditures to the county authorities. If we could get the State's endorsement as suggested by Mr. Wilson, it would make the payment that much easier. If we can not get it, then we should provide, I think, for our own sinking fund. Money counts up mighty fast at compound interest, and we have not found any difficulty in making good investments. One of the big trust companies of the town handles it, and they loan it on real estate mortgages, and it has now grown so that it looks like we are going to be well up at the end of the present period.

Another thing to consider: However good a bond bill may be; however good may be the act of the legislature under which you propose to inaugurate your system, that bond issue is not going to carry itself. While there is no politics in it (there should not be) I do not care whether you are a stand-patter, who thinks everything ought to be left just as it is, or a progressive who would change everything, you can very well afford to get together on this bond issue; but you have got to *get together*. I venture to say to any county in North Carolina which would vote a bond issue, that while theoretically the passage of the bonds is dependent upon the votes of the people, in the last analysis of the proposition it depends upon the work of fifty to a hundred men who have to carry it, or it will not be carried.

Mr. Van Lindley, in Guilford County, was talking bond issues for ten years, and people thought he was crazy. He has been well repaid for the work. I do not believe in making people do things, but this work needs missionary effort. So, if you want a county bond issue, after having gotten your bill in shape, you must start an active campaign. There is some objection, in some men's minds, against a new registration, but it is a fair thing. If people are interested enough to come in and have any voice, they ought to be willing to register, and therefore, the thing to do is to have your new registration, get your committee non-partisan, but active, and go after the people, and show them that after all, a bond issue is not such an awful thing. That is the economical and proper way to build your good roads; and if a hundred men—and I presume these men here have to be the seed from which that hundred are raised?—there is not a county in North Carolina that will not see that a reasonable sized county bond issue, properly spent, is certainly the solution of our much vexed problem for good roads.

Mr. Wilson: The speaker referred to the bill mentioned in my paper as "the Wilson bill." I appreciate his good intentions, but that is the bill drawn up by a committee appointed by the body of a convention of this Association. Another thing: the bill should provide a maximum and minimum tax, to be decided by the committee, and that should be submitted to a vote upon petition of a certain proportion of the citizens of the county or township. When I started out here I was admonished by your chairman not to take over fifteen minutes to say what I had to say; therefore, I hurried over the matter and did not give much attention to the bill itself, for it will be printed; therefore I did not make it plain that the bill does state that it shall take 25 per cent of the registered voters of the county to avail themselves of the

privilege of this Act. The maximum amount was not inserted, but I think it a good idea to leave this to the county.

Q. If I remember correctly, the opposition to that bill (I approve the bill) was the idea of some people that the State ought not to receive that big responsibility?

A. Yes, sir.

Q. Why would it not be a good idea to split the bill so that there could be a general law passed under which counties could vote their bonds?

A. Certainly. And another bill providing for the State guarantee. It does not affect that a particle, and only applies to those counties which, after the adoption of the bill, avail themselves of the privilege of this Act by a vote of the people.

Dr. Pratt —It gives me a great deal of pleasure to introduce the next speaker. I have been associated with him just twenty years in connection with various lines of work in North Carolina, and in other parts of the United States. It is to him that I owe my first interest in the subject of good roads. It was through my association with him that I got the good road enthusiasm, and it has given me the impetus to try to do what I could for the building of good roads in North Carolina. North Carolina owes to him, perhaps, as much as to any one else, the start in State work in regard to good roads. He became State Geologist in 1891. One of the first lines of work that he took up was the question of building good roads all over North Carolina, and if you will go back and review the work of that time, you can see that with the exception of one or two counties, others were not doing much in the way of building good roads. He arranged the first road meeting that resulted in the organization of the North Carolina Good Roads Association; he was responsible for this Association, and it was with a great deal of pleasure that I got his telegram saying that he was going to be with us at this meeting.

This is probably the best and most enthusiastic road convention that has ever been held under the auspices of the North Carolina Good Roads Association, and it is very gratifying to have the man who is responsible for its organization present upon this occasion. I take great pleasure in presenting to you—not introducing, you all know him—Dr. J. A. Holmes, now of Washington, D. C., Director of the Bureau of Mines, who has come to us because he is still interested in the good roads work of North Carolina.

Address.

BY DR. J. A. HOLMES, DIRECTOR, BUREAU OF MINES, WASHINGTON, D. C.

Mr. President, Ladies and Gentlemen:—It is with a great deal of pleasure that I get back to talk to North Carolina people again, and the Secretary has been good enough to say that he would not expect me to talk much about the subject to which he has assigned me, because Mr. Willard was going to take care of that, and that I could say almost anything I pleased.

One good thing in coming back to North Carolina is to see that you have made more progress than when I was here, and the carrying on of this work by your present Secretary, Dr. Pratt, seems to have been done most efficiently. I had intended saying many pleasant things about him, if he had not gotten ahead of me and said so many nice things about me; but I have not much use for the man who can not say anything good about his successor; so when Dr. Pratt got Orange County to pass a bond issue for \$250,000 I took off my hat to him, because the last talk I had with a committee of men in Orange County they said, "Mr. Holmes, if you will just leave here, we will get along in peace and comfort." They had been stirred up a little too much.

Another pleasure in coming back is to shake hands with my old friends, Dr. Alexander and Squire Hilton. They are the pioneers in road building in North Carolina. Another good reason is on account of the real progress which the State has made. It has only been one year since I was here before, but it has been thirty years since I began tramping over the North Carolina roads in the summer time, and trying to tramp over them in the winter time, and the progress this old State has made in thirty years is worthy of credit all over the United States.

When I went to the University thirty years ago, there were not one-fourth the students, the buildings, equipment or income which the University now has. The Agricultural and Mechanical College was not in existence, and hundreds of other flourishing institutions were not in existence then. The industries of the State, its agriculture, its manufacturing, and its progress along all lines are such as to make a Tar Heel glad to come back here, wherever he comes from. I have to go all over the United States today, among all classes of people, but nowhere does one find the Anglo-Saxon in its purity which one finds among our own people today.

I remember the old tradition they told me when I first came here, handed down from Nat Macon, that a state was a good state where the people lived far enough away so that they could not hear each other's dog bark.

It is an experiment which I hope we will continue to make in the development of a country like this, to have the development of a great rural community, without any large cities, but with the united citizenship of the State. In a place like Chicago it is easy to vote taxes, but when you have yourself to pay a considerable portion of it, like in this State, you have to educate the people and show them where they are to get their money back; and I think the greatest trouble we have had in getting the tax voted in North Carolina is in getting the people to understand that the tax is an investment and that we can invest a state's or county's or township's money just as well as a business man can invest his own individual money; and as people come to see that they are going to get their money's worth, they are going to vote the money.

With reference to this good roads movement in this State a few sugges-

tions occur to me. One of the things has been touched upon very fully this morning, by Mr. Stacy and Mr. Wilson—the lack of a state system. I remember a few years ago, when several of the people before me were members of the Legislature, when I tried to get a single little bill, called the "Broad Tire Bill" before the Legislature. It looked so simple, I did not see how anybody could object to it at all, but about the first county that came up to vote, its representative moved to except his county from the provisions of that bill, and so on for about fifteen or twenty counties, and my friend, Judge Connor, happened to pass by, and I said, "Judge, haven't we any State at all? Is it all counties?" And the Judge went and got three or four counties to stay in. Then some one said he believed there was a "nigger in the wood pile," and Judge Connor was good enough to say, by way of stemming the tide, that there *was* a "nigger in the wood pile," and it was one of the best niggers he had ever known, and he wanted his county to stick for it.

Coöperation is something which we need under a State system. North Carolina is a great State for individuals. I do not know of any place where you have better individuals than in this State, but they like to pull by themselves, and you know the only way the modern and up-to-date baseball and football teams win is by pulling together as a team and not as individuals. We are learning that in North Carolina. We want, however, a state system which will retain its individual features, retain its county features, and have a State feature, with possibly a Federal feature. We do not want the Federal Government to have much of the control, but we want them to coöperate, if they will, in the building of these roads. But let us have a State system coöperating with the individuals who will do the work, and we will get the good roads that we need.

You know the general principle which you must rely upon in all this work is that of getting a proper location before you improve the roads, because, if you do not do that, every dollar will prove a bad investment; and you want this campaign of education in the good roads movement to keep progressing.

It is a great pleasure to see that this Good Roads Association is not only alive, but that it is active, because you have a lot of educational work yet to do. You will find a lot of townships and counties yet in the State where, if you raise too much of a disturbance, they will ask you to do as the Orange County farmers did me—to just go away; but, after all, if you will do the work and carry on the educational campaign, and carry the election, they will thank you from the bottom of their hearts as soon as they begin to see the results.

In regard to the convict system: It is a pleasure to see North Carolina leading in the utilization of its convicts in public road building, and I have visited a great many States. I do not think the system is yet perfect. I think before it gets to be perfect in its application we will have practically all of the State convicts working on the public roads. (Applause.) I think the present Superintendent of the State farm will be just as pleased as any of you, when you show him that they can be used efficiently in this work. I have been in many states where the convicts were used for manufacturing furniture and other things, and I do not believe in that system at all. I would rather see the convicts do something else; and there is nothing better he can do than to work the public roads.

There are just two or three general principles which we must keep in mind in connection with the punishment of the criminal: To keep the convict

from repeating his crime; we want to see that he gets punished, so as to prevent other people from committing the same crime, but, in my judgment, two other things are needed: Not only that the convict does not commit that crime again, but also that he repay the State for the cost of the crime which he has already committed; and I think that Mecklenburg and other counties have accomplished that in a remarkable way. I remember in a convict camp once, asking an old darkey if he thought it was right that he should work on the public roads, and, to my surprise, he said yes; that he had done the county some harm, and he thought now that he ought to do it some good.

I have seen convicts not treated always humanely; but I think a highway commission will give serious consideration to this phase of working convicts. It does not pay to treat them unjustly. Whether you look at it from the standpoint of humanity or of policy, it pays to be humane, because even an animal responds to good treatment.

I find, on looking up the subject, that only eight or nine per cent of the convicts of the United States are used in road building. I should like to see that 98 per cent. In only three of the forty-eight states are convicts used, to any extent, in road building. Some of our missionaries ought to help wake up the other of those forty-eight States, and I was delighted to see in a discussion not long ago in the United States Senate, when Senator Simmons was presenting that address of his on good roads construction, that senators from other parts of the country listened attentively and asked many questions, saying that they wanted to learn more about this North Carolina system of road work. In only a few of the states do they use their convicts in a county system, whereas, in seven of the states, there is some attempt at a state system. Maryland, for instance, has been appropriating a million a year for five years. New York \$5,000,000 a year, and even Virginia (I hate to see Virginia getting ahead of North Carolina, because I have heard those people talk with South Carolinians about that "strip of land" left between the two States). When North Carolina was forging ahead, Virginia was doing absolutely nothing for good roads, but now Virginia is spending \$250,000 a year as a part of its state system in coöperating and helping the various counties in their good work. North Carolina, I think, has only \$5,000, but I hope this is just the beginning of a more extended State system. It ought to be millions, because, if there is any way by which we can get five or ten dollars back for one in an investment, it is when we properly invest money for good roads.

Another thing is illustrated in the difference in the cost of convicts. I was interested, some time ago, to find such variations as this: In Florida it is 30 to 50 cents per day; in Georgia from 15 cents per day per convict to 32 cents; whereas, in Kentucky, 50 to 60 cents; Louisiana, 50 to 60 cents; in Mississippi as low as 15 cents for certain counties, and 45 cents per day in others; North Carolina, 15 cents to 40 cents; Texas and Tennessee, 20 to 40 cents. They have pretty good eating, too, as I can testify from personal experience, having eaten with them at various times. I was surprised, however, in calculating these facts from year to year as to how the cost was increasing, even for the simplest sort of fare, as well as what you might call "high life."

I am not going to say more on these particular matters. I suppose I ought to say just a word about this wide tire business. It is generally admitted that wide tires are useful, and some one asked me this morning if

that were true, why we did not have wider tires. It seems much easier to go ahead like we have been doing. Yet all the experiments show that in most counties wide tires have the advantage. Under some conditions they do not have the advantage. When you have a loose gravel, a wet sand or earth on top, and a wet surface below, or as it is in the hill countries, it is not advisable to use the wide tires. If, however, we can get along with wide tires, under all the conditions except those, they must be a pretty good thing. About 60 per cent of all the wagons have tires from one and a half to two inches wide; whereas, it is generally admitted, as a result of European practice, that the best tire varies from four to four and a half inches in width. Experience has shown that the damage done to the public roads by these narrow tires is more than twice as much as by a tire from four to four and a half inches wide.

It is a great pleasure for me to be here with you, and I am satisfied I am getting a great deal more benefit than you are, and I will say, as Greely said: That as not more than half of the people left while I was talking, therefore I regard the talk as a great success. (Applause.)

Wide Tires.

By M. S. WILLARD, WILMINGTON, NEW HANOVER COUNTY.

There are some things which are so self-evident in connection with this subject of wide tires that they will occur to any one who gives the matter any thought. No less important than securing the building of good roads is the question of their maintenance. I remember reading in some treatise on the subject of good roads that a certain celebrated road expert was asked the question, "How soon after a good road is finished should we commence to repair it?" and his answer was, "The next day." And I do not believe any one who has ever been connected with the building of good roads will be inclined to question the importance of the subject of how best to maintain the roads after they are built. And then follows naturally the question, "Why should the matter of maintenance be so important?" and the answer is that on account of the use of the roads by the public they at once begin to wear out and deteriorate. And then again should follow naturally the question, what character of usage causes the greatest wear and deterioration?

Until the advent of the automobile there could be but one answer to this question, and that answer would necessarily be, the use of narrow tires on heavily laden vehicles. Certainly no argument is needed to prove this. To every observant person this is self-evident and will be admitted. Nor is it only on roads of a soft or yielding nature that narrow tires are harmful. The same action takes place in a less degree on the hardest pavements. The principle of the wide tire is the same as that of snow shoes. The sinking action is prevented by distributing the weight over a large area.

Wide tire regulations are no new idea. Every European nation having good roads prohibits the use of narrow tires. The width of the tire is regulated by the weight of the load the vehicle is designed to carry, those carrying the heaviest loads having tires as wide as ten inches. France requires tires from three to ten inches, depending upon the weight of the load; Germany requires not less than four inches; Switzerland not less than six inches; Austria not less than four and one-third inches. Those who have traveled through these countries can testify to the magnificent highways

which intersect them in every direction, and these highways could not be maintained in their excellent condition without the wide tire regulations.

The two agencies, therefore, which do the greatest harm to good roads are automobiles and narrow tired, heavily laden vehicles.

In the matter of automobiles it does not appear that any legislation is needed except such as shall regulate their speed on the ordinary, narrow country good roads and congested city streets, and this legislation is needed more for the purpose of protecting life than it is in the interest of the roads themselves.

In the matter of narrow tires we have, in addition to the argument that they are excessively injurious to the roads, the additional argument that they are most expensive to the owners of the vehicles. It may be difficult to convince the owners of these vehicles that it is to their own interest to abandon the use of narrow tires, just as it is one of the most difficult things to convince certain citizens that it will be to their own interest to have enacted in their particular territories stock laws or no-fence laws. It can be demonstrated beyond a shadow of a doubt that both laws are beneficial to the community adopting them, but those who will be temporarily inconvenienced or put to some expense, will invariably be very active in their opposition to both laws. No one has ever known of a stock law being repealed in any section where it had been tried for a period of four or five years, and often the original opponents become the strongest advocates of such a law. And the same result would surely be accomplished in any section where a law providing for wide tires on heavily laden vehicles should be tried for a few years.

In addition to the evidence furnished by those counties which have advanced nearer towards perfection in good road building, we are not without testimony here in our own country, both as to the value of wide tires as practical road machines for conserving good road conditions, but also as to their value to the persons who may have occasion to use the roads for the transportation in vehicles of merchandise of one kind or another.

Some years ago a test was made in Atlanta, Ga., as to the merits of wide as compared to narrow tires. In one test wagons of equal weight and loads were drawn over a wet piece of clay road, one wagon having two-inch tires and the other four-inch tires, with rear wheels farther apart than the front wheels. It was shown that twice as much pull was required on the two-inch tired wagon as on the four-inch, and the portion of the road covered by the two-inch tired wagon was cut and rutted to a depth of several inches, while the four-inch tires had rolled the road to a smooth, firm surface.

A recent bulletin of the Missouri State Board of Agriculture tells of this test and also of experiments made by the Agricultural Station of Utah, which demonstrates the fact that a one and one-half inch tired wagon drew about forty per cent heavier than a wagon with three-inch tires. "Loaded with a weight of two tons, the wide tired wagon could easily be hauled over an earth road in good condition by two horses; while one-half as much was a full load for two horses with the narrow tired wagon."

The State Board of Agriculture in Missouri seems to have given a great deal of attention to this question of width of tires and sizes of wheels, and the result of their investigations and experiments is embodied in a bulletin issued in May of this year. Some of the conclusions at which they have arrived and which are printed in this bulletin are that on macadam streets a load of slightly over 2,500 pounds can be hauled on broad tires with the

same draft that a load of 2,000 pounds would require on narrow tires; that on gravel roads, except such as are wet and sloppy on top, a load of 2,482 pounds could be hauled on broad tires with the same draft required for a load of 2,000 pounds on the narrow tires. On earth roads the results were uniformly in favor of wide tires in degrees varying from 52 to 61 per cent, except in the one case where the mud is very soft and deep, and in this case the difference between the draft of the two vehicles rapidly diminishes until the condition is reached when the mud adheres to both sets of wheels and here the advantage of broad tires ceases entirely and the narrow tires pull perceptibly lighter. One experiment is particularly interesting, and this was made on a dry clay road with deep ruts cut by narrow tires in the ordinary use of the road. The bulletin says: "In every trial the first run of the broad tires over the narrow ruts has shown a materially increased draft when compared with that of the narrow tire run in its own rut. The second run of the broad tires in the same track where the rut is not deep, completely eliminated this advantage and showed a lighter draft for the broad tire than the narrow tire showed in the first run. Where the ruts were eight inches deep with rigid walls, three runs of the broad tire in its own track over the ruts were required to eliminate this advantage. Three runs of the broad tire over this track have in all cases been sufficient, however, to so improve the road surface that both the broad and narrow tired wagons passed over the road with less draft than did the narrow tired in the original ruts. In addition to the saving of draft, the road was made very much more comfortable and pleasant for the users of light vehicles and pleasure carriages by the few runs of the six-inch tire."

They also report a large number of tests on meadows, stubble land and plowed ground in every condition, and they all show without a single exception a difference in favor of the wide tire, ranging from 17 to 120 per cent.

The Agricultural Experiment Station of the same state, in a pamphlet upon the "Influence of Height of Wheel on the Draft of Farm Wagons" emphatically announces that the "advantage of broad tired vehicles over narrow tired ones for general farm work, such as hauling feed, spreading manure, etc., has long been recognized. The work of this station has demonstrated that under almost all conditions of road surface the broad tired vehicles draw the lighter and are a benefit to roads, while the narrow tired ones are constantly destroying them."

Analogous to this subject of tires is that of the proper size of wheels, and this has also been investigated by this department, and a careful reading of the result of the experiments will well repay any one interested in the subject.

We now come to the most difficult part of the whole question. It is sometimes comparatively easy to get one to admit theoretically that certain things are desirable, and it is an entirely different matter to secure the consent of that same person to do anything towards securing the practical application of the theory.

The question, then, is, "How are we to secure the adoption of the wide tire idea by a sufficient number of people so as to bring about the enactment of the necessary legislation on the subject?" For we can be very sure that we will not secure the legislation we need unless the people in sufficient numbers ask for it.

An ordinance in force in the city of St. Louis provides for tires one and a quarter inches on vehicles having an axle one and a quarter inches in diame-

ter, up to six inches for vehicles with axles four inches in diameter. We could of course require something of the same sort in North Carolina, but it would probably result in the non-enforcement of the law just as it has resulted in St. Louis. We can not enforce a law making such a radical change until we have brought the people to realize the advantage that will accrue to them. Any progress along lines of this sort is obliged to come slowly.

Probably very few people know that an effort was made some years ago in North Carolina to promote the use of wide tires. The Legislature of 1899 passed an act providing for the remission of one-half an individual's road tax upon evidence that his vehicles were provided with wide tires. This law, which is Chapter No. 719, Laws of 1899, was evidently intended by its author to apply to the entire State, but certain legislators were probably not prepared to go even this far, and it was finally passed as applying to only about ten counties. My own county is one which is included, but I feel very positive that not a single application for remission of tax under the law has ever been made. I am not at all certain as to the best means to adopt to promote the use of wide tires, but it seems to me that the idea embodied in the act of 1899 is in the right direction. We could not at once ask for the enactment of a law which might affect every farm vehicle, because we could be absolutely sure such a law could not be enforced; but it seems to me we might ask for the passage of a law which would apply to more heavily laden vehicles than are usually used in general farming operations. Such a law would be chiefly applicable to vehicles used on roads near our larger towns and cities, and would not affect the small farmer. To apply to him we might ask for such a law as the one passed in 1899, which would leave it optional with him to secure wide tires, but which also would make it very profitable to him to invest in them. Then it would be up to us and others interested in the subject of good roads to carry on an active campaign of education to instill into the minds of every person owning a draft vehicle the necessity and the advantage of using wide tires.

Automobiles and Public Roads.

BY HON. FRED N. TATE, HIGH POINT, GUILFORD COUNTY.

Mr. President and Gentlemen:—I am due you an apology, in the first place, for coming unprepared. I expected to get up some notes after reaching here, but had an automobile accident yesterday which delayed me considerably.

I want to say, gentlemen, that the topic assigned me is, in my opinion, probably one of the most important. I feel highly honored in being permitted to introduce this topic, for I shall attempt little more than an introduction. The point I wish to discuss is in connection with the provision of a suitable tax to be paid by the automobile owners of North Carolina and used in promoting the good roads cause. This proposition may not appeal with a great deal of force to the average automobile owner, but I do not see why it should not if we are going to be fair in adjusting the general upkeep of the roads among our citizens according to their use of the roads.

There will be, by January 1st, approximately five thousand automobiles in the State. We already have forty-five hundred, and I believe it will by then exceed five thousand. We are now paying a tax of five dollars for the first year for a new machine, and one dollar each succeeding year. I don't know where this money goes, but I don't believe a dollar of it has been set aside

for any special purpose in furthering good roads. In my opinion, we could easily raise a fund of fifty thousand dollars by taxing each automobile ten dollars a year. Every man who can afford to own a car can afford to pay that much, and by doing this we can create a fund which can be put into a proper use by creating a State Highway Commission composed of broad minded men of experience, who know how to go out and advise with the counties and the townships who are not prepared to handle their road work themselves. That fifty thousand dollars, though it may seem small, would go a long way in the course of a few years toward improving the highways throughout the State. For instance, there are some counties, and some townships in these counties, which have unspeakably bad roads, and they are not able to improve these roads themselves. In the first place, they have no experience in road building; and, secondly, they have no highway engineer or man of experience in the county to locate and construct their roads. They need some aid from somewhere.

Now, if a highway commission, composed of five men, with one man like our friend, Mr. Pratt, at the head of it, with authority to employ State highway engineers to be sent to the several counties of the State where engineering assistance is needed, you could, with that fifty thousand dollars, pretty well cover the State in that sort of way, and it would go a long way toward improving the highways that are unimproved. We have heard much about bond issues today, but, do you know that one of the main arguments that our friends the farmers use against bond issues is on account of automobiles? They see an automobile go whizzing by, kicking up all sorts of dust on the roads that they think they are taxed to a great extent to maintain, and they resent it. As a matter of fact, the greater part of the tax is paid by the towns. As our friend, Mr. Douglas, said, in Guilford County the greater part of the tax is paid by the two towns of the county. If you want to get the good will of the country people, you can not get it in any better way than by showing them that the automobile owners are paying a certain amount toward the maintenance of the roads.

I am simply throwing out a few thoughts as to what I think might be done in this respect. We would have to begin, as I said, by creating a highway commission to handle the proposition in a businesslike way; have this fund, whatever it might amount to, set aside for a specific purpose. Let this fund be used in employing highway engineers to go out, under the direction of this Commission, and visit certain localities; as, for instance, Boone Township, in Davidson County, in which my bad experience occurred, and show them what to do with their road problems. Now that township is a disgrace to North Carolina. If we were all built like Mr. Varner we would all have good roads from the mountains to the sea, but there is a township in his county which has done absolutely nothing for good roads, and probably will not do anything until somebody goes in there and does it for them. I can not go over that highway from Charlotte to Greensboro without passing over this portion of road, which is simply impassable, and it does not cost a little ten dollars, either, to get over it. Now, gentlemen, that is just one county. You will find similar conditions in many counties. You will find all along the line on any highway stretches of bad road. You can build your central highway from the sea to the mountains, and yet you will have to go through some counties which have not done the first thing in road building, and will not until they are assisted. They need some one to go in there, like Dr. Pratt, to tell them how to build their roads, and how to build them cheaply.

I believe fifty thousand dollars would work wonders when it came to doing things of that sort.

I have simply thrown this out as an idea; I don't know whether it meets with your approval, but I favor it and I don't believe that the ten dollars a year tax on the automobile is too much. I think it is certainly little enough for the automobile owners of North Carolina to pay into the State Treasury each year, to be used as a special fund for furthering the highway interests of the State.

Mr. Wilson: There are already over 5,200 automobiles registered in the State now, and \$3 out of the \$5 goes back to the county roads. It does not amount to a great deal, like it is used now; whereas, if it was bunched all together and appropriated to the maintenance of a highway commission, it would do some good.

Mr. Tate: I do not think this special fund ought to be turned back, or any portion of it, into the county in which it was paid, because some counties would get very little benefit from it. Very few automobiles are in some counties. This ought to be used by the State at large, because we don't want to run our automobiles in one county alone; we want to go all over the State. Let this fund apply over the State generally.

Why Road Travel is no Longer Local.

BY A. G. BACHELDER, CHAIRMAN EXECUTIVE COMMITTEE OF THE AMERICAN
AUTOMOBILE ASSOCIATION.

Since travel is no longer local and roads affect everybody, it is the plain duty of business men through organizations to give their great influence to highway improvement. And so it is equally true that the motorist, being the most persistent user of the road, must concern himself in a duty which properly devolves upon him. Years ago it was the cyclist, looked upon almost as a visionary, who fought for good roads. His place has been taken by the motorist with a vehicle both time saving and economical, and there is now no hesitation in working openly and brazenly for good roads.

With the coming of the automobile the road question became widened and enlarged. With vehicles which would cover one hundred or two hundred miles a day, conditions rapidly became known to the people in adjoining counties, and a broader comprehension of the whole highway question was inevitable. National roads are the logical outcome of the growth of travel. Because travel became more general and went further afield, county roads succeeded town roads, and then with the early automobiles, State roads succeeded county systems for the same reason. Now with the field of travel restricted only by the two oceans, the fairness and justice involved in the establishment of great national routes must be apparent to every one.

National, state, county, or township highways which bear the brunt of transportation, according to their particular uses, should be the ones first to receive consideration. Main township roads should have first call on the highway system of a town; in like manner the principal county roads should first be built; the same idea holds good in selecting the roads of a state; and

finally those highways which serve in a national or interstate manner, demand Uncle Sam's primary recognition.

Extended lines of road across a state or between principal centers of population have become a necessity of modern traffic. A long stretch of improved road is one of the best advertisements a state can have. It attracts a class of tourists who are able and willing to pay for entertainment. It brings investors who are looking for advantageous locations. It induces agricultural investigation and consequent immigration and investment, not only along the line of the road, but in other accessible sections. It changes by the sheer force of publicity, backward localities into progressive ones, enhances values, and brings into general notice resources which before had been only locally known.

The continuity of such roads, and the demand for standardization of construction and maintenance, gives rise to a factor in highway development which it is more just that the State should provide for than the local communities through which they pass. The essential justice of the State assuming such expense, in whole or in part, is being better understood.

Massachusetts recognized the situation several years ago, and in recent years most of its appropriations for State road construction have been expended in building such sections of road as would fill "gaps" and connect State roads with each other. Other New England States have followed a similar plan.

Pennsylvania has this year enacted a new law which is just being put into effective operation, which will result in a system of State roads between each of its principal cities and county seats. The roads of the border counties will reach to the State lines.

Some of the newer Rocky Mountain States are also building State roads, for the convenience of through traffic, as well as for the accommodation of the people along the line.

Since we have progressed from the town to the county road, and from the county road to the State road, the next step is the national or interstate road, and hence there exists a pronounced and just demand for Federal assistance, and something will come in the comparatively near future, but that something should be within reason, and of comprehensive national scope.

The stimulus of transcontinental routes would be astounding. The transcontinental idea appeals to the imagination. It is American in conception and typifies the progress of the Nation, which quickly absorbs and utilizes anything new possessing merit. The trip from coast to coast in an automobile, with its possibilities for an intimate examination of the country, is an education incomparable to anything else. This interstate touring is doing more to make us a great Nation, to distribute our population, and to make us more thoroughly realize the needs of one another than anything else which has come to us since the signing of the Declaration of Independence.

There is reason and justice in the appeal "See America First." With the establishment of national routes, making transcontinental touring convenient and comfortable, the tide of European travel will be stemmed, and the enormous sums of money which are yearly expended abroad will be kept within the confines of our own country, in seeing such wonderlands as our Yellowstone and Glacier national parks, the Yosemite Valley, the Rocky,

Blue Ridge, and other mountain ranges, and our numerous other scenic marvels without equal.

In all parts of the country automobilists are actively allied in one form or another with the American Automobile Association, which has forty-four state bodies, nearly four hundred local clubs, and represents in organized form over eight hundred thousand active road users.

Special efforts are being made to secure the admission of motor vehicles to our national parks. Recently there was passed in Congress an amendment providing "that all revenues received after July 1 from national parks shall be expended only for construction, improvement, and repair of roads, trails, and bridges in the respective parks, and for no other purpose whatever."

Recently the Senate committee voted adversely upon the proposition of government roads rental for rural free delivery routes used in the various states, recommending the substitution of the resolution pending in the House, which resulted from the Federal Aid Convention promoted in Washington last winter by the American Automobile Association National Good Roads Board, and coöperated in by states and local good roads associations, and by such national organizations as the National Grange and Farmers' Union. Commenting upon this governmental roads rental, Congressman Kent of California, which State has recently voted \$18,000,000 for the creation of a great system of roads to be built and maintained at the expense of the State, said: "To my mind the Federal Government might well help in the construction of great national highways, where the work would be uniform in character, and where there would be a chance for pride in the thoroughness with which the great arteries were built. The states may properly play their part, and in many cases are so doing, by aiding with state highways. The little rural route is a local affair, a matter for the counties and the minor districts. The expense can and will be properly borne by these communities by whatever system of taxation they may choose."

The problem of road construction and maintenance is being met in several of the states by the employment of convicts on the roads, proving a great economic factor in road building, and invariably improving the physical and moral well-being of the convict. The demand on the part of the state highway department for efficiency in road construction at a minimum of expenditure can well be met by the universal employment of such labor, at the same time insuring a wage to the convict, which will benefit those dependent upon him.

A certain member of Congress from Illinois is of the belief that in many sections of the country the people have gone "road crazy." This representative doesn't believe in the building of the highway from the Battlefield of Gettysburg to the National Capital to serve as the memorial to Abraham Lincoln. However, there are many other members of Congress who believe that by no better or more lasting tribute could the fame of Father Abraham be perpetuated. There are many members of Congress who believe in the efficacy of highway improvement, looking upon it as one of the most important duties which the Federal and state governments have to perform, and consider that in interesting themselves intensively in the roads question they are acting sanely and building wisely for the future.

Reports of Committees.

The Committee on Nominations on next meeting place reported as follows, which report was accepted by the Convention. Officers for the coming year were presented to the Convention and elected.

President—H. B. Varner, Lexington, North Carolina.

Secretary—Joseph Hyde Pratt, Chapel Hill, North Carolina.

Assistant Secretary—Miss H. M. Berry, Chapel Hill, North Carolina.

Treasurer—Joseph G. Brown, Raleigh, North Carolina.

Vice-Presidents—J. L. Patterson, Roanoke Rapids; R. L. May, Trenton; M. C. Winston, Selma; P. H. Hanes, Winston-Salem; A. B. Skelding, Wilmington; P. B. Beard, Salisbury; F. M. Shannonhouse, Charlotte; E. C. Chambers, Asheville; H. E. Stacy, Rowland.

Executive Committee—H. B. Varner, Lexington; Joseph Hyde Pratt, Chapel Hill; Joseph G. Brown, Raleigh; Frank H. Fleer, Thomasville; William Dunn, New Bern; R. M. Phillips, Greensboro; Dr. C. P. Ambler, Asheville; Wade Harris, Charlotte; James A. Wellons, Smithfield; W. C. Feimster, Newton; W. C. Hammer, Asheboro; D. A. McDonald, Carthage; G. E. French, Statesville; R. R. Cotten, Bruce.

This committee also reported that the next meeting place would be left to the discretion of the Executive Committee, with the suggestion that it might be well to meet in Raleigh during the session of the legislature.

The Resolutions Committee, Dr. C. P. Ambler, Chairman, then made their report. The resolutions were read and voted upon separately, and as a whole, and the following are the resolutions as adopted by the Convention:

Resolutions.

OF CONVENTION OF THE NORTH CAROLINA GOOD ROADS ASSOCIATION,
HELD AT CHARLOTTE, AUGUST 1 AND 2, 1912.

Realizing that the State of North Carolina, through her present county and township system of road administration, construction, and maintenance, is annually wasting in money and labor at least nine hundred thousand dollars, and that her present system of bad roads is now annually costing the citizens of the State at least twelve million dollars, the Convention of the North Carolina Good Roads Association assembled in Charlotte this the second day of August, 1912, would go on record as most heartily endorsing the changes and methods of procedure as embodied in the following resolutions:

Resolved, That it is the sense of this meeting that the State should appropriate out of the general treasury the sum of one million dollars annually for twenty years for the construction of public highways, and that a State Highway Commission should be established to have control of the expenditure of this fund and supervision of the public road work in this State.

Whereas, There is being wasted each year at least five hundred thousand

dollars of the amount now being raised in the several counties of the State for road construction and maintenance; and

Whereas, It is realized that a very large part of this sum could be saved to the State if it was expended under the supervision of competent road engineers:

Be it resolved, That this convention goes on record as endorsing State engineering assistance to counties in the location, construction, and maintenance of their roads.

Resolved, That it is the sense of this convention that all convicts who are suitable for road work should be used in the construction of public roads, and that they should be worked under the supervision of a highway commission or under the Highway Division of the North Carolina Geological and Economic Survey; and that their guarding and care should be under the supervision of the Superintendent of the State's Prison: *Provided*, that it shall not apply in any way to the present method of working county convicts in their own county.

That we condemn the system of leasing convicts to corporations or using them in the construction of any railways or for other private interests.

Resolved further, That until there is a change in the methods of working the State convicts, all profit derived from the penitentiary should be used in building public roads by a State highway commission or the North Carolina Geological and Economic Survey.

Resolved further, That we heartily endorse a form of State aid by which the State becomes security for county bonds issued for the construction of public roads.

Resolved, That we most heartily endorse Federal aid in public road construction, and do hereby urge our Senators and Members of Congress to give their earnest and serious consideration to such aid.

Resolved, That it is the sense of this convention that the State should levy a higher regulation tax per year on all motor driven vehicles, regulated according to the horsepower of the car, and that all moneys raised by said tax shall be used in the support of a State highway commission.

Whereas, There is a law on the statute books of North Carolina making it obligatory upon the county commissioners to erect sign posts or sign boards at all crossroads in the counties and for the overseers to maintain such sign boards and sign posts:

Therefore be it resolved, That this association declares itself to be in hearty accord with this law and believes that it should be enforced, and, therefore, requests the members of this Association to take up with their respective county commissioners their compliance with this law, and that the association petitions and requests the assistance of the Geological Board in the enforcement and fulfillment thereof.

Resolved, That we appreciate the interest and cordial coöperation existing between the North Carolina Good Roads Association and the Rural Letter Carriers' organizations, and that to this end we favor the continuance of the joint committee on coöperation.

Resolved further, That we are opposed to all methods of raising revenue for road work except by a property and poll tax.

Resolved, That we appeal to the people throughout the State, regardless of political affiliation, for their hearty coöperation with this association in seeing the above resolutions carried out, and that we especially appeal to the teachers in our public schools, colleges, and University, and all school officials

to use their best efforts in helping to bring about a healthful sentiment for the building and maintaining of *good roads*.

Resolved, That this association greatly appreciates the support heretofore given by the press throughout the State in the good roads movement, and requests and desires their continued valuable assistance and coöperation; and be it further

Resolved, That the thanks of this association be extended to the city of Charlotte, Board of County Commissioners, Greater Charlotte Club, and the hotels, for their most cordial hospitality extended to the delegates; and be it further

Resolved, That the sincere thanks of the association be extended to the daily papers of Charlotte for their full reports of the convention and their assistance in advertising the same.

AFTERNOON SESSION.

FRIDAY, AUGUST 2, 3:00 O'CLOCK.

Public Roads and the Farmer.

By HON. W. A. GRAHAM, COMMISSIONER OF AGRICULTURE.

Mr. President and Gentlemen:—I am very glad to be with you, but I did not know until this morning that I was on the program, and did not come prepared. I represent the farmers, who constitute four people out of five in the State. I have been among the farmers for a good many years, and I am glad to say the time has come when you can go out among the farmers and find them in a good humor. It used to be that you could tell all kinds of yarns and could not get them to smile, scarcely, but that condition has passed away. The farmers' condition has improved in the last few years.

Now the great trouble has been the farmer did not think. That was where he failed. The farmer was at one end of the plow and the mule at the other, and one thought about as much as the other. I had a book at my house called the "Democrat," published about 1740, stating that the idea of making a man think at all was, of all things, the most important. The second thing is to make him think right.

We say the biggest tax we have is the mud tax, and a great many farmers apply that to the public roads. The mud tax on the farm is just as much as on the public roads. Haven't you got neighbors who have mud holes between the house and the barn? They have a little path leading to the barn, and when it rains they have to go a good piece out of the way to get on dry land. Now, it takes just as much strength to pull up a hill on your plantation as on the public road, and if you have corn in your bottom, the hardest thing to do is to pull out of that creek at the ford, and every time there is a freshet, the mud washes out. Those are the things we ought to look after on our private property. Just as much so as on the public roads, and they are just as great a drain upon us.

North Carolina leads now in the amount of cotton made to the acre; 315 pounds are made in this State, whereas the average is 207. How is it done? Texas has more than we have. Alabama many times more; still we beat them in farming. As to corn: In 1860 North Carolina made only thirty million bushels of corn; 1910, forty million, but in 1911 it went to fifty-eight

million bushels. We actually gained that much in one year. Now that the farmer has to do the hauling, he turns his attention to the public roads, because the farmer himself can see the condition of the roads has much to do with what he gets from his crops.

As to the question of State aid and national aid: The parties of this State were divided, in old times, whether the State should furnish aid for public improvements and things of that kind. One side said it should and one that it should not, and that was the thing that divided it up until we got the North Carolina road. Shortly after the Revolutionary War a number of people from Charleston obtained from the State the right to improve the Catawba River for navigation, and they were required to improve it before 1796, and were allowed the sole right to navigate the Catawba River, because of the improvements they made. You go out to Mountain Island and you will notice where they cut for those flat boats to go around that shoal. And down in South Carolina you will see where they let the boats down in the river below, and for fifty miles out of South Carolina. They did not conclude the work by 1794, so in 1796 the State withdrew its charter, and every man within five miles had to work it like they do the public roads. The boat used to load with cotton to go to Charleston, and if a man was to start from Abernathy's ferry to Charleston, and cotton went up sometimes as high as thirty cents a pound, by the time the boat arrived the cotton went down again. Whenever a ship was in, tobacco was high. No ship in, a man took what they offered him, until the State inaugurated a plan of warehouses. You took what tobacco you had in there, and there was a government officer in charge, and he gave you a receipt, so that our people have been accustomed to this kind of business from the very start.

Now, the farmer is interested in getting to market, and what he wants now is the best way to get to market. He has been taxed to build these roads, and before the railroads came he used the rivers. This State had associations in '22 and '23, and every year they would meet in the different judicial circuits and discuss this question of internal improvements. Their plan was to improve these rivers as high as they could, and then build highways to the point on the river where these goods would be delivered, and they carried on that until the railroads came, and then they came and you had turnpikes to bring you to a river to ship your goods. Now you want a sand-clay or some good road to carry you to the station to sell your goods. When our people do go, they go all together. That is one thing about North Carolina—she goes solid. Its organization in these matters has been great. I went with Captain Alexander in the Senate when the first railroad bill was passed. The members of the House passed a bill through the House. It came up in the Senate and it took four pages, with their arms full, to carry those petitions to the Senate, and then the thing was killed out. We beat him for nomination next time, and after that he went in for just as long as he wanted to; and that is where the good roads started in North Carolina, and the people grew up and saw what the benefits were.

I have always been convinced that the sand-clay roads were good, and I got convinced of that before we got the stock law. There used to be places three and four feet deep. When we filled them up, the rain just washed the sand down to these places, and from that day to this it is the finest sand-clay road you ever saw; and it occurred to me, if other people could do that, we could do it, too. Of course in places where there is no rock or sand you have to haul it to make it; but where you have the material, like in this county, the sand-clay

road is what you need. After you cross the river you get over into Lincoln County, four-fifths of that road on each side of it, the first eight inches is full of gravel. You can do that in most every county in the State. You can pay the man what his top soil is worth, because the chemist tells us there is enough stuff in there to last one hundred years. There is enough stuff to make one hundred crops on. After you get down on that hard pan, it takes two horses to break it. You have better land than you had before, and a better road at the same time. This thing is being done in Iredell, and, I think, in Cleveland County. You take our Piedmont section and on into the mountains, and you find that kind of stuff of which you can make roads. We had the old iron furnaces in those times. The furnaces ran for nearly a hundred years, and you can take those cinders, etc., and build miles of roads with the material.

Nearly all these roads were started with convict labor, and most all the people think nothing can be done without a man with the chains on. In the small counties like Lincoln, etc., where we don't have many to bother us, if we only used our own convicts we could not afford to keep up a chain gang.

These negroes don't break Mecklenburg's law; it is North Carolina's law; consequently we have a right to these convicts; and the judge trying the cases—we pay him for that; so there should be a just distribution of the convicts throughout the State. Of course you have to have them in such gangs that you can work them economically, or else they will cost you more than the free labor will.

If I had known I was on the program today, I would have prepared something along these lines, because, representing four-fifths of the people—the farmers—you would naturally have expected something good.

We used to be hard up. You take a neighborhood where four out of five are in good circumstances; the others soon fall in line. As long as we can keep the farmers in a good, prosperous condition, North Carolina is going forward; but when the time comes when the farmer can not pay for his supplies, then we are going to have poor times in North Carolina again.

I am old enough to have been farming when the war began. I saw the South in her glorious days. Then the North Carolina farmer lived at home and made his own supplies. I don't care if corn is ten cents a bushel, you have to make what you are going to use yourself. You can sit down at night and take your pencil and figure out how you are going to make a fortune farming; but where is the man that proves it out? And an abundance of corn is always a sign of prosperity. I have been going to sales for over sixty years, and have never yet seen the sheriff sell out a man with a crib full of corn.

Our people are finding that out, and when they do, there is no reason why North Carolina should not be the richest State in the Union. Why do you want to go elsewhere? Texas has a greater area, but we beat her in crops. But we want North Carolina to have better roads. We have better schools, and let's get along with the road situation in the same style.

If you want to read an interesting document, get hold of Governor Swain's message of 1834, stating how the people are all leaving because of lack of traveling facilities and of the poor schools. In those days they did not say these roads will make a big dividend and pay off the taxes; they said, what you have to sell you can send off and get that much more for it. Now, you read those messages of Morehead and Graham; and that is what they wanted the farmer to do—to send out his surplus and bring in what he

wanted on his place. We have the arteries of the world in the form of railroads; now let us connect with them. Let's get the good roads, so that the farmer can get his stuff as cheaply as possible to the station.

I am sorry that I did not have time to prepare a paper.

Address.

BY PROFESSOR W. C. RIDDICK, NORTH CAROLINA COLLEGE OF AGRICULTURE
AND MECHANIC ARTS.

Having been expelled from one institution in the State, graduated from another, and being a teacher in a third, I think probably I am about as well qualified to speak for one of them as any one man you could find.

Now, education, gentlemen, and good roads, are inseparable allies in the building up of our State, each one being a cause, as well as an effect, of the other. In fact, education, good roads, and improved methods of farming have become the trinity of our country's political creed, and no man is orthodox who does not advocate them.

As to what the institutions of higher learning are doing for good roads, it seems to me that this might be divided into three distinct heads. First, a young man goes to college, has his mind broadened and his ability to grapple with problems enlarged, and no matter what course he may take at college—whether political, engineering, professional, or otherwise, his mind is trained to this extent, and he goes back home prepared to become a leader in all of these, for the advancement of the State. Any institution, I may say, which does not turn out its students in favor of good roads, that institution does not deserve to exist, and this man can not help growing and increasing and exerting that influence over his fellow man. He can not help from seeing that the question of good roads is now a most important one.

The second thing that our State institutions can accomplish for good roads is to increase the productive efficiency of our young men.

Estimate that a young man has his productive efficiency increased about from two to three hundred per cent while he is at our colleges. That is taking a sort of dollar and cents view of the question. And saying nothing of the most important part of his education, which is the groundwork that he lays for future growth after he leaves college. We say that a young man, when he comes to our college, can make \$1.25 per day, and when he leaves there the world says he is worth \$3.50 to \$4 per day; and of course that is true, to greater or less extent, in all institutions.

These young men go back to the State and accumulate wealth themselves and add enormously to the taxable value of the property of the State, because they build roads; they improve cities; they manage commercial enterprises; they engage in the various professional enterprises, and in this way, by increasing the taxable property of the State, they enable the State to build roads without undue or excessive burden upon the property, and, as we have had it emphasized time and again in this meeting, you can not build roads without money.

Now, in the third place, the colleges of the State are training men to do this road building work. They are turning out men with education along technical lines which will enable them to make practical road builders as well as scientific road builders; and that is what we need.

I would not lay any less stress upon the practical side of road building, but I am here to tell you that there is a scientific side to it, too. You can not

have good roads in any state until you have got, in the first place, the right sentiment among the people; in the second place you have to have the property there which you can tax to get the money, and in the third place you have to have the men there whom you can tax to get the roads, because road building has never received any greater blow than from the mistakes made in spending the money which has been raised by the people.

Just one point along the line of Professor Hickerson's speech, in regard to engineering education. I just want to mention something in regard to the general principles of road building. There has been very little stress laid at this convention on what I consider the most important part of road building. Now, we have had a great deal of discussion here about sand-clay roads, macadam roads, tar-macadam roads—all of them with reference to the surfacing material. Now, did you ever think about it, gentlemen, that the sand-clay road, the macadam road, and the tar-macadam road are all the same thing, except just the last process; that the covering material is a sort of an incident in the building of roads, and is not permanent in its character? The principal and important part, when we start to building roads, is the proper location of that road; and that is one of the things that is so often neglected in the construction of the roads. We go ahead and put down the covering material on a road that must, necessarily, be relocated before it can ever become, in any sense, a permanent road. Now, we can go ahead with our roads, locate them properly, grade them properly, drain them properly, and then the question of covering material is really of comparatively little importance, because if you make a mistake in your covering material and don't get it like it should be at first, you have only to come back and put it down again.

I was talking to Mr. Fallis this morning. He said he was building some roads in Iredell County, and that he does not know whether they are all right or not, but that he is grading them right and putting down the best material that he can conveniently get to build those roads out of. Now, it has not cost him anything hardly to put on that surface material, and he can readily come back and put on better surfacing material, if needed. It pays better to do that than it does to discard this material and put down a whole lot of macadam that it may not be necessary to put down.

I am very much obliged to you, gentlemen. I did not expect to make a speech, and I will not take up any more of your time.

REPORTS ON SPECIAL HIGHWAYS.

Central Highway.

BY H. B. VARNER, CHAIRMAN CENTRAL HIGHWAY COMMITTEE.

Not as much has been done on the Central Highway as I had hoped and expected, but work is progressing in all the counties along the way, and we decided last night at a meeting held at Lakewood Park to make a tour of inspection, the week beginning September 16th, starting from the Tennessee line. Between now and the date of the tour we hope to work up the weak places. We think that will be a great highway; the plan is to have a roadway 30 feet wide from ditch to ditch, and no grade over four and one-half per cent. It is the longest state road in the Union that I know of, and the purpose is to make it a model piece of road through each of the nineteen counties through which it runs. We have done a great work but have not done as much as we expected to do. We expect to do great things yet. In the tour we made last year over the road we stirred up the people all along the line over the question of good roads; we held meetings in every county and helped organize a number of County Good Roads Associations.

We now expect to go over that road in six days, starting at the Tennessee line on the 16th and wind up the following Saturday at Morehead City. I will not take up your time further because you can talk about a thing of this kind all day and it would not be of interest except to the people who live along the road. It was the intention of the bill to start in Madison County on the Tennessee line, but as the roads in that county are not in condition for travel, we will start the tour of inspection in Haywood County.

Crest of the Blue Ridge Highway.

BY JOSEPH HYDE PRATT, STATE GEOLOGIST.

In connection with the few remarks that I wish to make on the Crest of the Blue Ridge Highway I wish to call your attention to the map which will give you a little idea of the location of this highway. When completed in its entirety this highway will extend from Marion, Virginia, to Tallulah Falls, Georgia. From Marion, Virginia, it will pass around Whitetop Mountain and enter North Carolina via Ashe County, and then pass through Boone, Blowing Rock, Linville, Altapass, Little Switzerland, Asheville, Hendersonville, Brevard and Highlands, entering Georgia probably via Rabun Gap. The highest point on the road will be Stepps Gap, an altitude of approximately 6,000 feet,

where the highway will be within 800 feet of the top of Mount Mitchell, the highest mountain peak east of the Rockies.

On account of the character of the country through which some of this highway passes and its scanty population, it will be necessary to build a considerable portion of it by private subscription, and so instead of being a public road it will have to be a toll road. This portion of the road lies between Boone and Asheville, N. C., a distance of about 130 miles. From Boone to Linville, a distance of 32 miles, there is already a toll road, which will become part of the Crest of the Blue Ridge Highway. From Linville to Asheville the location of the road has been surveyed and there is no grade on it over four and one-half per cent. The Blue Ridge is crossed and recrossed so that the highway is sometimes on one side and then on the other, but keeping as nearly as possible to the higher portion of the mountains. The highway passes through the Black, Balsam, and Craggy mountains; and although this portion of the highway offers some very heavy work the road has been located with no grade over four and one-half per cent. For the past three years we have been surveying the route of this highway, and in July 1912, the actual construction of one of its links was commenced, and we are now building from Altapass toward Linville. The road which has been built is 24 feet wide from ditch to ditch, and on curves it is from 30 to 50 feet wide. Although the road is not now being surfaced, plans are made to surface nine feet of the road with sand-clay or gravel. There are now 100 men working on the road; and we are building as rapidly as possible toward Humpback Mountain. It is the desire of the Appalachian Highway Company, which company has been chartered to build this highway, to have open by next summer the highway from Little Switzerland to Linville via Altapass. By doing this we will open up for travel, over 50 miles of the road, which will be suitable for automobiles, with a fairly good connection at Blowing Rock with a highway leading to Lenoir and the Piedmont section of North Carolina.

Although the road from Boone to Asheville will not be a public road but a toll road, we are getting all the people along the line interested in the highway. They are giving us right of way and also making subscriptions to the stock of the company. When the work was started three years ago to make a survey for a route of the highway there were only a few of us who were sanguine of building the highway; and there were not many who had very strong expectations that work would actually begin on the construction of the highway at any very early date. We have been fortunate, however, in being able to arrange means for beginning this work and it is expected that this can be continued until

the highway is open to Linville and Little Switzerland. With these two places connected by a first-class highway, it will not be very difficult to obtain further funds to continue the highway westward toward Mount Mitchell and Asheville.

Although, as I have stated before, there will be considerable heavy work on this highway through the Black, Balsam and Craggy mountains, on account of the amount of solid rock that will be encountered, yet, even if the road costs as high as \$10,000 or \$12,000 per mile for certain sections, it will pay to build the road. It will open up a country, the scenery of which is equal to any in the world, and it will attract tourists in such numbers that the amount of money brought into the country by reason of the road will in a very short time more than pay for the actual construction of the highway.

The construction of the highway has been started and we do not expect to stop until the highway has been built right through the heart of the mountains of western North Carolina, on into Georgia, and into Virginia, with connecting roads leading from various points into the Piedmont sections of Virginia, North Carolina, South Carolina, Georgia, and Tennessee. It is probably one of the largest road propositions ever undertaken in the South, or even in the United States. But the plan is feasible. It is started; it is going to be completed; and we are going to be proud of the Crest of the Blue Ridge Highway!

Triangular Highway.

The President: Mr. Tate, who was scheduled to report on this highway, asked me to say to the Association that a road is being completed between High Point and Winston-Salem; that they had also secured money to improve the road between High Point and Biscoe, and that when this is done the Triangular Highway will connect with Winston-Salem and, in the portion from High Point to Raleigh, will coincide with the Central Highway.

Capital Highway.

JOSEPH HYDE PRATT.

I have just had a letter from Mr. Tufts in regard to this highway, who writes as follows with regard to it:

I am afraid that my report on the condition of the Capital Highway will not be very satisfactory, and in many respects you will have better information than I, as it is some time since I have been over it, and I haven't seen any one that has been over it since last fall between Pinehurst and Richmond. I have had a number of letters from people telling me of its improvement, but I find oftentimes that others' ideas and mine as to what a good road is do not coincide. Perhaps I am a little too practical.

Last January Mr. McQueen, Secretary of the Capital Highway Association,

went from Pinehurst to Augusta and back, and he found the roads in a fairly satisfactory condition all the way with the exception of a short stretch between the North Carolina line and Cheraw.

I have recently taken a contract to fill in this gap and to keep it in repair for two years, and last winter I took a contract to build and maintain the road from Pinehurst to the South Carolina line by way of Rockingham. This road will be entirely completed this year, making a distance of about sixty miles. Mr. McQueen spoke especially of the fine road between Darlington and Hartsville, S. C., and of the road in Richland County, in which Columbia is located. The roads in and around Camden he said were improved also. He made the trip from Augusta to Pinehurst, 250 miles, in a day and a half, so you can see from this that the roads are not in a very bad shape. The roads from Augusta to Atlanta, and from Augusta to Savannah, were in very good shape last fall, according to the report of motorists that went over them. The road from Pinehurst to Fayetteville, I have taken a contract to build and maintain, and this is a distance of about fifty miles. Lee County, as you know, has voted bonds, and they promised to build the road through Sanford, so that when this stretch is completed there will only be a few miles in Chatham County between Pinehurst and Raleigh that will not be good. The people of Wake County have, I have been told, put their section of this road in excellent shape.

In going north from Raleigh I have had no recent reports, but last winter I heard of considerable activity in this section. There is no place on the road between Pinehurst and Richmond that is at all impractical in dry weather and the bad places are being improved. Much of the road is excellent and all of it is fair, but of course in wet weather, especially in the winter, there are sections that will have to be either macadamized or graveled or sand-clayed, before they will be entirely satisfactory for winter travel.

My description of the road between Raleigh and Pinehurst applies as well to the Triangular Highway as to the Capital Highway. You are familiar with the conditions between Greensboro and Raleigh, and I have recently taken a contract to build and maintain in Randolph County fifteen miles of road between Asheboro and the Montgomery County line. Mr. Frank Page has assured me that the short stretch of road between Biscoe and the Randolph County line will be put into good shape shortly. This only leaves fifteen miles of bad road between Pinehurst and Greensboro. The people of Randolph have already asked me to take a contract to build this, but I refused to do it until the other piece is completed, as I want to get some idea as to the cost before making an estimate on the balance. I have no doubt, however, but what this section will be completed in another year, whether I or some one else build it.

One thing in connection with the work that the Capital Highway Association is doing is this: Through the influence largely of Mr. Tufts and in coöperation with the Geological Survey, arrangements have been made by which contracts have been let for the construction of roads at a definite price through Cumberland County, Hoke County, Montgomery County, and, I think, a part of Randolph County. Sand-clay roads are to be built and if they cost more than the contract

price the balance is to be made up by Mr. Tufts. If it costs less than the contract price, the money is to be returned to the county commissioners. Through this system there is beginning to be built through this section of North Carolina a system of sand-clay roads which is doing wonders for this entire section, and this has been inaugurated by the President of the Capital Highway Association, Mr. Leonard Tufts of Pinehurst.

Another feature inaugurated by Mr. Tufts is in regard to the maintenance of the roads after they are built. At the present time we have contracts for the maintenance, I think, of 75 miles of sand-clay road at a cost of \$30 per mile per year. That is about as low a price at which you can maintain a road. I would have preferred to have it \$50. This Capital to Capital Highway was laid out across North Carolina, and certain links of it had to be built. We could not get the people to build them until Mr. Tufts worked out this plan, and this highway is now nearly completed across the State, and to my mind it is in as good condition as any other highway that we are planning.

Talks from Representatives of Counties, Towns, and Good Roads Associations.

Mayor Dickerson, of Wilson: I was not expecting to be called upon, but I reckon I can tell you about the roads in our county about as well without having had any notice. We have one township—in which our town, Wilson, is located—where we have macadam roads. We have had these roads completed something like four or five years, and find that they are deteriorating somewhat, and that we will have to devise some system of keeping them up; otherwise they will go to ruin pretty soon; and, in addition to this one township, we have several miles of the sand-clay road in the upper part of our county, where we have both sand and clay, and we find that a very valuable road. That is, it has proved to be so far, and we believe that with proper upkeep from this time on it will prove to be even better than the macadam road. We have quite a number of convicts that we work. We have a chain gang there, and have something like forty or fifty on this gang working constantly.

I was interested in the question brought up here about working convicts on the public roads of the State. We have not a recorder's court there, but the mayor of Wilson has jurisdiction over all crimes except felonies and grand larceny, and of course we get many men sent to the roads from this court and from the superior court. We work all of the convicts sent to the road from the superior court, except the long-term ones, and in that way we feel we are constantly getting our roads in better condition each year. I do not recall now whether we have

had any representative in the State Convention of the North Carolina Good Roads Association before or not. We expected to have *more* at this time. I believe we have only two from our county. We expected to have at least half a dozen delegates. They were appointed and expected to attend, but were providentially detained, as I have heard since I have been here.

I feel that the discussions I have heard here have given me some light and information which I have not had before, and I hope that I can tell our people down there of the work Mecklenburg County has done, and of the great work that this Association has done, and is going to do in the future.

THE PRESIDENT: I would like to hear from any county represented here.

Mr. French: I bring you greetings from my own county of Iredell. Now, nobody knows you are any good unless you talk about yourself, but every one knows that we are doing a great road work, and I am going to outline what we are doing. Our bond issue was passed in 1911. We already had several miles of macadam roads, but those macadam roads are going to pieces and something has to be done with them. They are no account. All of our new roads are top-soil roads. They have a very good grade. The heaviest grade will not be over three and one-fourth per cent. These roads are to be covered with seven of eight inches of top soil. We have only finished about fifty miles, and the top soil, most of it, at about \$1,687 per mile, including bridges. That includes much of the bridge work of the county, with heavy fills, and we expect the bridges and all, at the show-down to cost about twelve or thirteen hundred dollars per mile. My county has invested in ninety-six mules and an expensive road equipment, (and it has been proved that it was economical to do so. They are removing earth much cheaper than would be possible by convict labor), and while many objected to the purchase of these mules and equipment, it has proved a very wise and economical move because the teams are trained and the equipment is all first-class; and while we do hire farmers' teams, to some extent, still we are depending more upon our own equipment and mules. The county has some \$23,000 worth of mules. Now we have bridged the Catawba river at Buffalo Shoals. We raised the fund at Statesville to build a fine steel bridge, which is about completed, and which is on the Central Highway. We are not one of the richest or most populous counties either, in the State, but we are only doing what can be done in every county of North Carolina. We are doing something, but not as much as we ought to be doing, because out of our 354 miles of roads we have only improved about nine and three-fourths per cent so far, and that is not

nearly so much as should be, or could be done, and North Carolina is from now on going to do something in road building, in a very much more serious way than it has ever done before, because it is not a question of whether we want roads, but we have simply got to have them, or we have to take a back seat. You cannot breathe the spirit of the times, you cannot be in the front ranks, unless you do these things that we need, and this is a great economic proposition, and I repeat that here in North Carolina we have got to build good roads. We are simply compelled to do it, whether we want to or not, and every county has got to build some roads. No township is so poor that it cannot do something if its people are serious and will get to work, and at the next meeting of this Association we will be able to make you a more complete report of the work we are doing in Iredell County, and we believe our work is going to be very satisfactory.

Mayor Griswold, of Durham: In about fifteen years Durham built about eleven and one-half miles of macadam roads, against great opposition from the farmers. We now have about 600 miles of roads, about 260 miles improved roads (not macadam) and about 115 miles of macadam. We have no bond issue. Our road tax is only 20 $\frac{1}{3}$ cents on the hundred dollars. We find everybody in the county now is in favor of good roads. Durham township pays 95 per cent of the taxes, none of which is spent within the incorporate limits. Therefore we are liberal enough to build the roads all out through the county. Our idea has been to build out the main thoroughfares to other counties first, to draw the trade to Durham. Now we are making the crossroads, and the taxes received from the rural districts just about keep up the roads we have built. We have about eighty convicts and use them all on the roads; we have no free labor at all. We have a lot of those convicts repairing and building roads. We have recently purchased a lot of binder and are going to repair the roads with it. We find many of the macadam roads disintegrate with the machines running over them. It is a pitch binder and we are going to put that on after we repair some; we are going to give it a trial on our dirt roads. We have some sand-clay roads—fifteen or twenty miles—and we are going to use some oil on them to keep them from disintegrating. When oil is put on sand-clay roads that are not properly rounded up, it will run off, instead of going into the roads.

We spent last year the following amounts:

DURHAM COUNTY.

Amount Expended on Road Construction from June 30, 1911, to July 1, 1912.

Alston Avenue	\$8,827.39
Red Gorge Road	5,631.02
Williardsville Road	763.73
Coles Mill Road	409.41

Bahama Road	\$4,429.80
Driver Avenue	73.00
East Durham Road	2,412.55
North Road	7,132.17
Hillsboro and Fish Dam.....	437.73
Ferrell Road	7,933.30
Mangum street extension.....	3,652.41
Guess Road	562.75
Stagville Road	15.00

Total for construction	\$42,280.26	\$42,280.26
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TOTAL MILEAGE OF ROADS IN DURHAM COUNTY.

Construction of wood bridges.....	1,370.08	
Construction of concrete bridges.....	10,500.00	
		11,870.08
Maintenance of roads (townships):		
Mangum	\$1,216.66	
Patterson	481.28	
Oak Grove	243.49	
Lebanon	652.97	
Cedar Fork	49.73	
Carr	172.71	
Durham	9,123.92	
		11,940.76
Bridge maintenance		2,019.39
Total amounts expended		\$68,110.49

Quebec and Miami, Capital to Capital, and Central Highway, being completed at the rate of one and one-half miles of macadam per month between Durham and Raleigh. Probably will be ready by fall.

About fifteen years ago Durham County built a mile and a half of macadam road. The people soon saw the benefit of good roads and the demand for them has increased each year.

The total mileage of roads in Durham County is about seven hundred miles, of which there are two hundred and sixty miles of improved road, not graded, fifteen miles of road bed graded and macadam being placed on it, ten miles of graded gravel road, one hundred and fifteen miles of macadamized road—a total of four hundred miles of improved roads.

The longest stretch of macadam road in the county extends north and south thirty-three miles, the entire length of the county. This road north of the city of Durham is one of the best built roads in the State. There is one steel bridge and eight reinforced concrete bridges on it. All culverts are concrete or terra cotta. The standard width of all improved county roads is thirty feet and the maximum grade is five per cent.

There are six steel bridges and eight reinforced concrete bridges in the county. The county commissioners expect to put in several other concrete or steel bridges during the year.

At present our road force numbers eighty convicts. No free labor is employed. They are divided into three repair and two construction camps. The county has on the road work thirty-six head of stock (horses and mules),

two crushers, one steam roller, and one gasoline roller, two traction engines, and other road equipment.

The county spent in 1911 on roads and bridges \$62,420.82. Durham County has no road bonds outstanding and none under consideration. The road tax is 20½ cents on the one hundred dollars property valuation. The increase in valuation for 1910 was \$1,500,000, in 1911, \$1,700,000.

Our County Commissioners are paying more attention to road repairs and maintenance. They have ordered bituminous road binder to be used in some of the repair work.

We built in the city of Durham out of the nigger-head rock and used this binder on it, and it looks like bitulithic, almost. We bought a large kettle for heating it, and put this boiling binder on it, and it is almost as level as the floor. I think an old road, constantly traveled over and worn out and repaired is much better than a new road, and I think it will last longer.

Dr. Greene, of Cabarrus County: I have been very much interested in this conference. I received an invitation from Professor Holmes, I think to the first conference of this Association in Raleigh. I have been brought up in a land that knew nothing of mud roads whatever—Yorkshire, England. Returning from that conference, and believing that if we wanted good roads we could have them, we went to work with our county commissioners to see if we could not get a good road between our school building near Concord and Concord. They said “We have no money with which to buy the rock or to pay for the hauling of the rock.” Our school gave them the rock, then a man went through the country with a paper, asking men who had to go through that bad road to give a day or two hauling of that rock free. The county commissioners said they were \$16,000 in debt, and could not afford to buy a rock crushing outfit. That county now is \$200,000 in debt, but it is not so bad off with that debt as it was with the \$16,000. That was caused by five cents cotton. Those men rolled rocks into the mud, and made as it were curbs, and that road is standing to this day. That was the beginning of the road work in Cabarrus County.

Having been away from the State for about fifteen years and returning, one can see the difference as perhaps few can realize who have lived here all the time. People may think North Carolina is making slow progress in the building of roads, but it is making good progress. To be sure the upkeep ought to be maintained, and I will say this: that in England men are paid to work on the roads all the time; to spend their lives on the roads. They become experts in repairing them, so that if a ditch washes out, or a piece of it, they will fill it up and keep it in good condition.

And about the broad tires spoken of this morning: In England if one would dare to put above a certain load on a certain width of tire,

they would fine him for it. Every wagon is numbered and has the man's name on it, and if he is suspected at all, the wagon is weighed and the man has to pay his fine.

We hope a great many things that have been discussed here will find their way into this State very soon.

Dr. Ambler, of Buncombe County: *Mr. President:*—I have not heard from our ten delegates from Asheville. I want to say this: We have met Haywood County on the west, Madison on the north, we are running to Black Mountain on the east, we have met Henderson County on the south; we have a good grade and surfaced road, and on the way to Rutherford County we have five roads radiating from Asheville to the county line. The delegation came here in ten hours by way of Greenville, making 192 miles, I think, and, with the exception of about seven miles down the mountain, from the Henderson-Greenville line, we had good roads all the way. No one is here from Henderson County, but Henderson is doing her part. We came over a beautiful road from Henderson, running towards Greenville. In Buncombe County we have not only built these public roads, but private roads, and we have a private road to Mt. Pisgah and to Overlook Park.

Buncombe County is going ahead with her sand-clay, her macadam—and, gentlemen, we are not only talking in Buncombe, but we are building roads, and thus far we have all these roads radiating out of Asheville in all directions, and without a bond issue. We have had no bond issue there for the purpose of building roads; and I believe if any county would simply get to work, if you cannot make the roads all over your county at once, you can certainly make some.

As I reported some three years ago, at our first meeting, I believe it is the organization in our county that has built these good roads. If any of you are considering organizing local good roads associations, we have a book describing our aims, results, constitution and by-laws, and anybody who is interested we will be glad to give a copy of that book to.

P. B. Beard, of Rowan County: I want to state that Rowan County has formed a good roads association. It has two convict camps at work on her roads. She has never made a bond issue on roads, and has over 100 miles of macadam now, and, as I have stated many times before, Rowan County would meet any highway touching her borders with an equally good road. We have built many bridges in our county, and completed the bridges over the Central Highway to Statesville; also another highway completed to Mooresville, so that either road can be obtained, and Rowan County is not behind. I have here with me my county engineer, and also about twelve other delegates. Rowan County is in the procession, going on with her road work.

Mr. M. C. Mayer, Charlotte: *Mr. President, Ladies and Gentlemen:*—You have heard a great deal about the Mecklenburg roads. I don't want to detain you long on that subject. We started out with the "pay-as-you-go" system, because we could not do anything better. Mecklenburg was a pioneer in road building twenty-five years ago. Capt. S. B. Alexander, the father of the road laws of North Carolina, had a bill passed known as the "Alexander law." As soon as that became known to the farmers, and they thought there was an extra tax to be put upon them, they began circulating petitions to have it repealed. A man presented a petition to me to sign. I told him I did not know anything about the road law. I knew we had bad roads. I did not know anything about what this gave to us, but I was in favor of giving every law a fair trial, to see what was in it. He said, "The farmers don't want this thing, and I want you to sign it," and I respectfully declined, and he said, "If you don't sign it I will go out in the country and we will work against your place of business." I told him to go, and he went, and got a number of signers to present a petition to the next legislature and have that law abolished, but the people in favor of good roads took it up again and at the next legislature they reenacted it.

So far as issuing bonds is concerned: To get along fast in your county, you need bonds to do it. The slow way we commenced by paying as you go—we did not have the money, we did not issue bonds—it was hard to get started at all. While Mecklenburg was reported to have \$300,000 bonded debt, \$200,000 was given to build this railroad to Atlanta, and the other hundred thousand was to take up the bonds issued before the war, to take up bonds for building roads from here to Wilmington and to Statesville.

We have Charlotte Township, governed by a set of trustees, three in number, the same as the five Mecklenburg Commissioners, and we have in connection with the tax that is made on the county generally, a law applicable especially to this county, that any township that so desires can put a special tax for their road improvement. We put about ten cents on the hundred dollars, and with that fund we have been doing extra work in our township, opening up roads from one line to another. The up-keep of the macadam we have not paid much attention to. We have not been able to solve that problem. We thought in Charlotte we had arrived at the solution. We got hold of a man with a team, and he offered to work for us for about four or five dollars a day. We thought by sending him out with his team that he could keep the roads in repair, but in less than thirty days we found he knew nothing about the roads and we had to let him go. When we tried to get a man with intelligence enough, he would not handle the pick, and wanted two negroes to do the work. That is one problem that we have not solved—keeping up

the roads. I want all the county and State roads we can get; but the United States government should help us in this enterprise. We want a highway 20 feet wide, with the best concrete or steel bridges from here to Atlanta, and we want it to end at Washington City. (Applause.) We want North Carolina, Georgia and Virginia to join us. We have been paying our wealth into the United States treasury here year after year, and what do we get in return? Occasionally a thirty or forty thousand dollar postoffice. The gentleman who was here yesterday, and other congressmen and senators, pulled out \$1,700,000 for water ways. If you will give me a million dollars I will build you a highway from the South Carolina to the Virginia line, that you will be proud of. I don't want to say anything against those people for getting that money, but in fairness to us let them wait for three or four years without asking for more money for waterways and so on, and give it to our Western section, and let us reap the benefits. We have only about 200 miles to touch the Virginia line. Then it would be in order to build a road from the seacoast and carry it to the Tennessee line. Let the government come in with its aid and make a road you will be proud of.

The government is now debating and building on two or three extra battleships whose mission is to destroy. The mission of a good road is to build up. Two years ago the United States government appropriated \$25,000,000 for two battleships, an appropriation of \$500,000 a year for each State in the Union will amount to \$24,000,000. If you let each State have \$500,000 apiece every year for two or three years, you will have good roads. It would only be necessary to stop building battleships for one or two years, or to stop giving money for waterways for one or two years in order to use this money for good road building. Now they will tell you that these waterways are for the benefit of North Carolina. I don't know how much money has been spent in the last twenty-five years for waterways, but I suppose \$10,000,000 or \$15,000,000. If the merchants of New York, or Baltimore, or Philadelphia were to ship their goods to some port on the coast of North Carolina, as Wilmington, for instance, and haul their goods down there without charge and send in order to get that goods from Wilmington to Charlotte, we would only save the small sum of two cents on the hundred pounds. If you can show me where the people of piedmont and western North Carolina get any benefit from those waterways, it is more than I can do.

A motion was made and carried that the thanks of the Convention be tendered to the officers for promoting the success of this Convention.

Upon motion of Mr. Hutchinson, seconded by several, the Convention adjourned *sine die*.

PUBLICATIONS
OF THE
NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY

BULLETINS.

1. Iron Ores of North Carolina, by Henry B. C. Nitze, 1893. 8°, 239 pp., 20 pl., and map. *Out of print.*
2. Building and Ornamental Stones in North Carolina, by T. L. Watson and F. B. Laney in collaboration with George P. Merrill, 1906. 8°, 283 pp., 32 pl., 2 figs. *Postage 25 cents. Cloth-bound copy 30 cents extra.*
3. Gold Deposits in North Carolina, by Henry B. C. Nitze and George B. Hanna, 1896. 8°, 196 pp., 14 pl., and map. *Out of print.*
4. Road Material and Road Construction in North Carolina, by J. A. Holmes and William Cain, 1893. 8°, 88 pp. *Out of print.*
5. The Forests, Forest Lands and Forest Products of Eastern North Carolina, by W. W. Ashe, 1894. 8°, 128 pp., 5 pl. *Postage 5 cents.*
6. The Timber Trees of North Carolina, by Gifford Pinchot and W. W. Ashe, 1897. 8°, 227 pp., 22 pl. *Out of print.*
7. Forest Fires: Their Destructive Work, Causes, and Prevention, by W. W. Ashe, 1895. 8°, 66 pp., 1 pl. *Postage 5 cents.*
8. Water-powers in North Carolina, by George F. Swain, Joseph A. Holmes and E. W. Myers, 1899. 8°, 362 pp., 16 pl. *Postage 16 cents.*
9. Monazite and Monazite Deposits in North Carolina, by Henry B. C. Nitze, 1895. 8°, 47 pp., 5 pl. *Postage 4 cents.*
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11. Corundum and the Basic Magnesium Rocks of Western North Carolina, by J. Volney Lewis, 1895. 8°, 107 pp., 6 pl. *Postage 4 cents.*
12. History of the Gems Found in North Carolina, by George Frederick Kunz, 1907. 8°, 60 pp., 15 pl. *Postage 8 cents. Cloth-bound copy 30 cents extra.*
13. Clay Deposits and Clay Industries in North Carolina, by Heinrich Ries, 1897. 8°, 157 pp., 12 pl. *Postage 10 cents.*
14. The Cultivation of the Diamond-back Terrapin, by R. E. Coker, 1906. 8°, 67 pp., 23 pl., 2 figs. *Out of print.*
15. Experiments in Oyster Culture in Pamlico Sound, North Carolina, by Robert E. Coker, 1907. 8°, 74 pp., 17 pl., 11 figs. *Postage 6 cents.*
16. Shade Trees for North Carolina, by W. W. Ashe, 1908. 8°, 74 pp., 10 pl., 16 figs. *Postage 6 cents.*
17. Terracing of Farm Lands, by W. W. Ashe, 1908. 8°, 38 pp., 6 pl., 2 figs. *Postage 4 cents.*
18. Bibliography of North Carolina Geology, Mineralogy and Geography, with a list of Maps, by Francis Baker Laney and Katherine Hill Wood, 1909. 8°, 428 pp. *Postage 25 cents. Cloth-bound copy 30 cents extra.*
19. The Tin Deposits of the Carolinas, by Joseph Hyde Pratt and Douglass B. Sterrett, 1905. 8°, 64 pp., 8 figs. *Postage 4 cents.*
20. Water-powers of North Carolina: An Appendix to Bulletin 8, 1910. 8°, 383 pp. *Postage 25 cents.*
21. The Gold Hill Mining District of North Carolina, by Francis Baker Laney, 1910. 8°, 137 pp., 23 pl., 5 figs. *Postage 15 cents.*
22. A Report on the Cid Mining District, Davidson County, N. C., by J. E. Pogue, Jr., 1911. 8°, 144 pp., 22 pl., 5 figs. *Postage 15 cents.*
23. Forest Conditions in Western North Carolina, by J. S. Holmes, 1911. 8°, 115 pp., 8 pl. *Postage 15 cents.*

ECONOMIC PAPERS.

1. The Maple Sugar Industry in Western North Carolina, by W. W. Ashe, 1897. 8°, 34 pp. *Postage 2 cents.*
2. Recent Road Legislation in North Carolina, by J. A. Holmes. *Out of print.*

3. Talc and Pyrophyllite Deposits in North Carolina, by Joseph Hyde Pratt, 1900. 8°, 29 pp., 2 maps. *Postage 2 cents.*

4. The Mining Industry in North Carolina During 1900, by Joseph Hyde Pratt, 1901. 8°, 36 pp., and map. *Postage 2 cents.*

Takes up in some detail Occurrences of Gold, Silver, Lead and Zinc, Copper, Iron, Manganese, Corundum, Granite, Mica, Talc, Pyrophyllite, Graphite, Kaolin, Gem Minerals, Monazite, Tungsten, Building Stones, and Coal, in North Carolina.

5. Road Laws of North Carolina, by J. A. Holmes. *Out of print.*

6. The Mining Industry in North Carolina During 1901, by Joseph Hyde Pratt, 1902. 8°, 102 pp. *Postage 4 cents.*

Gives a list of Minerals found in North Carolina; describes the Treatment of Sulphuret Gold Ores, giving Localities; takes up the Occurrence of Copper in the Virginina, Gold Hill, and Ore Knob districts; gives Occurrence and Uses of Corundum; a List of Garnets, describing Localities; the Occurrence, Associated Minerals, Uses and Localities of Mica; the Occurrence of North Carolina Feldspar, with Analyses; an extended description of North Carolina Gems and Gem Minerals; Occurrences of Monazite, Barytes, Ocher; describes and gives Occurrences of Graphite and Coal; describes and gives Occurrences of Building Stones, including Limestones; describes and gives Uses for the various forms of Clay; and under the head of "Other Economic Minerals" describes and gives Occurrences of Chromite, Asbestos, and Zircon.

7. Mining Industry in North Carolina During 1902, by Joseph Hyde Pratt, 1903. 8°, 27 pp. *Postage 2 cents.*

8. The Mining Industry in North Carolina During 1903, by Joseph Hyde Pratt, 1904. 8°, 74 pp. *Postage 4 cents.*

Gives descriptions of Mines worked for Gold in 1903; descriptions of Properties worked for Copper during 1903, together with assay of ore from Twin-Edwards Mine; Analyses of Limonite ore from Wilson Mine; the Occurrence of Tin; in some detail the Occurrences of Abrasives; Occurrences of Monazite and Zircon; Occurrences and Varieties of Graphite, giving Methods of Cleaning; Occurrences of Marble and other forms of Limestone; Analyses of Kaolin from Barber Creek, Jackson County, North Carolina.

9. The Mining Industry in North Carolina During 1904, by Joseph Hyde Pratt, 1905. 8°, 95 pp. *Postage 4 cents.*

Gives Mines Producing Gold and Silver during 1903 and 1904 and Sources of the Gold Produced during 1904; describes the mineral Chromite, giving Analyses of Selected Samples of Chromite from Mines in Yancey County; describes Commercial Varieties of Mica, giving the manner in which it occurs in North Carolina, Percentage of Mica in the Dikes, Methods of Mining, Associated Minerals, Localities, Uses; describes the mineral Barytes, giving Method of Cleaning and Preparing Barytes for Market; describes the use of Monazite as used in connection with the Preparation of the Bunsen Burner, and goes into the use of Zircon in connection with the Nerst Lamp, giving a List of the Principal Yttrium Minerals; describes the minerals containing Corundum Gems, Hiddenite and Other Gem Minerals, and gives New Occurrences of these Gems; describes the mineral Graphite and gives new Uses for same.

10. Oyster Culture in North Carolina, by Robert E. Coker, 1905. 8°, 39 pp. *Out of print.*

11. The Mining Industry in North Carolina During 1905, by Joseph Hyde Pratt, 1906. 8°, 95 pp. *Postage 4 cents.*

Describes the mineral Cobalt and the principal minerals that contain Cobalt; Corundum Localities; Monazite and Zircon in considerable detail, giving Analyses of Thorianite; describes Tantalum Minerals and gives description of the Tantalum Lamp; gives brief description of Peat Deposits; the manufacture of Sand-lime Brick; Operations of Concentrating Plant in Black Sand Investigations; gives Laws Relating to Mines, Coal Mines, Mining, Mineral Interest in Land, Phosphate Rock, Marl Beds.

12. Investigations Relative to the Shad Fisheries of North Carolina, by John N. Cobb, 1906. 8°, 74 pp., 8 maps. *Postage 6 cents.*

13. Report of Committee on Fisheries in North Carolina. Compiled by Joseph Hyde Pratt, 1906. 8°, 78 pp. *Out of print.*

14. The Mining Industry in North Carolina During 1906, by Joseph Hyde Pratt, 1907. 8°, 144 pp., 20 pl., and 5 figs. *Postage 10 cents.*

Under the head of "Recent Changes in Gold Mining in North Carolina," gives methods of mining, describing Log Washers, Square Sets, Cyanide Plants, etc., and detailed descriptions of Gold Deposits and Mines are given; Copper Deposits of Swain County are described; Mica Deposits of Western North Carolina are described, giving Distribution and General Character, General Geology, Occurrence, Associated Minerals, Mining and Treatment of Mica, Origin, together with a description of many of the mines; Monazite is taken up in considerable detail as to Location and Occurrence, Geology, including classes of Rocks, Age, Associations, Weathering, method of Mining and Cleaning, description of Monazite in Original Matrix.

15. The Mining Industry in North Carolina During 1907, by Joseph Hyde Pratt, 1908. 8°, 176 pp., 13 pl., and 4 figs. *Postage 15 cents.*

Takes up in detail the Copper of the Gold Hill Copper District; a description of the Uses of Monazite and its Associated Minerals; descriptions of Ruby, Emerald, Beryl, Hiddenite, and Amethyst Localities; a detailed description with Analyses of the Principal Mineral Springs of North Carolina; a description of the Peat Formations in North Carolina, together with a detailed account of the Uses of Peat and the Results of an Experiment Conducted by the United States Geological Survey on Peat from Elizabeth City, North Carolina.

16. Report of Convention called by Governor R. B. Glenn to Investigate the Fishing Industries in North Carolina, compiled by Joseph Hyde Pratt, State Geologist, 1908. 8°, 45 pp. *Postage 4 cents.*

17. Proceedings of Drainage Convention held at New Bern, North Carolina, September 9, 1908. Compiled by Joseph Hyde Pratt, 1908. 8°, 94 pp. *Out of print.*

18. Proceedings of Second Annual Drainage Convention held at New Bern, North Carolina, November 11 and 12, 1909, compiled by Joseph Hyde Pratt, and containing North Carolina Drainage Law, 1909. 8°, 50 pp. *Out of print.*

19. Forest Fires in North Carolina During 1909, by J. S. Holmes, Forester, 1910. 8°, 52 pp., 9 pl. *Out of print.*

20. Wood-using Industries of North Carolina, by Roger E. Simmons, under the direction of J. S. Holmes and H. S. Sackett, 1910. 8°, 74 pp., 6 pl. *Postage 7 cents.*

21. Proceedings of the Third Annual Drainage Convention, held under Auspices of the North Carolina Drainage Association; and the North Carolina Drainage Law (codified). Compiled by Joseph Hyde Pratt, 1911. 8°, 67 pp., 3 pl. *Postage 5 cents.*

22. Forest Fires in North Carolina During 1910, by J. S. Holmes, Forester, 1911. 8°, 48 pp. *Postage 3 cents.*

23. Mining Industry in North Carolina During 1908, '09, and '10, by Joseph Hyde Pratt and Miss H. M. Berry, 1911. 8°, 134 pp., 1 pl., 27 figs. *Postage 15 cents.*

Gives report on Virgilina Copper District of North Carolina and Virginia, by F. B. Laney; Detailed report on Mica Deposits of North Carolina, by Douglas B. Sterrett; Detailed report on Monazite, by Douglas B. Sterrett; Reports on various Gem Minerals, by Douglas B. Sterrett; Information and Analyses concerning certain Mineral Springs; Extract from Chance Report of the Dan River and Deep River Coal Fields; Some notes on the Peat Industry, by Professor Charles A. Davis; Extract from report of Arthur Keith on the Nantahala Marble; Description of the manufacture of Sand-lime Brick.

24. Fishing Industry of North Carolina, by Joseph Hyde Pratt, 1911. 8°, 44 pp. *Postage 5 cents.*

25. Proceedings of Second Annual Convention of the North Carolina Forestry Association, held at Raleigh, North Carolina, February 21, 1912. Forest Fires in North Carolina During 1911. Suggested Forestry Legislation. Compiled by J. S. Holmes, Forester, 1912. 8°, 71 pp. *Postage 5 cents.*

26. Proceedings of Fourth Annual Drainage Convention, held at Elizabeth City, North Carolina, November 15 and 16, 1911, compiled by Joseph Hyde Pratt, State Geologist, 1912. 8°, 45 pp. *Postage 3 cents.*

27. Highway Work in North Carolina, containing a Statistical Report of Road Work during 1911, by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1912. 8°, 145 pp., 11 figs. *Postage 10 cents.*

28. Culverts and Small Bridges for Country Roads in North Carolina, by C. R. Thomas and T. F. Hickerson, 1912. 8°, 56 pp., 14 figs., 20 pl. *Postage 10 cents.*

29. Report of the Fisheries Convention Held at New Bern, N. C., December 13, 1911, compiled by Joseph Hyde Pratt, State Geologist, together with a Compendium of the Stenographic Notes of the Meetings Held on the Two Trips taken by the Legislative Fish Committee Appointed by the General Assembly of 1909, and the Legislation Recommended by this Committee, 1912. 8°, .. pp. *Postage .. cents.*

30. Proceedings of the Annual Convention of the North Carolina Good Roads Association held at Charlotte, N. C., August 1 and 2, 1912, in Coöperation with the North Carolina Geological and Economic Survey, compiled by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1912. 8°, 109 pp. *Postage 10 cents.*

VOLUMES.

Vol. I. Corundum and the Basic Magnesian Rocks in Western North Carolina, by Joseph Hyde Pratt and J. Volney Lewis, 1905. 8°, 464 pp., 44 pl., 35 figs. *Postage 32 cents. Cloth-bound copy 30 cents extra.*

Vol. II. Fishes of North Carolina, by H. M. Smith, 1907. 8°, 453 pp., 21 pl., 188 figs. *Postage 30 cents.*

Vol. III. The Coastal Plain Deposits of North Carolina, by Wm. Bullock

Clark, Benjamin L. Miller, L. W. Stephenson, B. L. Johnson, and Horatio N. Parker, 1912. 8°, 509 pp., 62 pl., 21 figs. *Postage 35 cents.*

Pt. I.—The Physiography and Geology of the Coastal Plain of North Carolina, by Wm. Bullock Clark, Benjamin L. Miller, and L. W. Stephenson.

Pt. II.—The Water Resources of the Coastal Plain of North Carolina, by L. W. Stephenson and B. L. Johnson.

BIENNIAL REPORTS.

First Biennial Report, 1891-1892, J. A. Holmes, State Geologist, 1893. 8°, 111 pp., 12 pl., 2 figs. *Postage 6 cents.*

Administrative report, giving Object and Organization of the Survey; Investigations of Iron Ores, Building Stone, Geological Work in Coastal Plain Region, including supplies of drinking-waters in eastern counties, Report on Forests and Forest Products, Coal and Marble, Investigations of Diamond Drill.

Biennial Report, 1893-1894, J. A. Holmes, State Geologist, 1894. 8°, 15 pp. *Postage 1 cent.*

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Administrative report.

Biennial Report, 1899-1900, J. A. Holmes, State Geologist, 1900. 8°, 20 pp. *Postage 2 cents.*

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Biennial Report, 1901-1902, J. A. Holmes, State Geologist, 1902. 8°, 15 pp. *Postage 1 cent.*

Administrative report.

Biennial Report, 1903-1904, J. A. Holmes, State Geologist, 1905. 8°, 32 pp. *Postage 2 cents.*

Administrative report.

Biennial Report, 1905-1906, Joseph Hyde Pratt, State Geologist, 1907. 8°, 60 pp. *Postage 3 cents.*

Administrative report; report on certain swamp lands belonging to the State, by W. W. Ashe; it also gives certain magnetic observations at North Carolina stations.

Biennial Report, 1907-1908, Joseph Hyde Pratt, State Geologist, 1908. 8°, 60 pp., 2 pl. *Postage 5 cents.*

Administrative report. Contains Report on Sand Banks along the North Carolina Coast, Jay F. Bond, Forest Assistant, United States Forest Service; certain magnetic observations at North Carolina stations; Results of an investigation Relating to Clam Cultivation, by Howard E. Enders of Purdue University.

Biennial Report, 1909-1910, Joseph Hyde Pratt, State Geologist, 1911. 8°, 152 pp. *Postage 10 cents.*

Administrative report, and contains Agreements for Co-operation in Statistical Work, and Topographical and Traverse Mapping Work with the United States Geological Survey; Forest Work with the United States Department of Agriculture (Forest Service); List of Topographic maps of North Carolina and counties partly or wholly topographically mapped; description of special Highways in North Carolina; suggested Road Legislation; list of Drainage Districts and Results of Third Annual Drainage Convention; Forestry reports relating to Connolly Tract; Buncombe County, Transylvania County State Farm, certain Watersheds, Reforestation of Cut-over and Abandoned Farm Lands, on the Woodlands of the Salem Academy and College; Recommendations for the Artificial Regeneration of Long-leaf Pine at Pinehurst; Act regulating the use of and for the Protection of Meridian Monuments and Standards of Measure at the several county-seats in North Carolina; list of Magnetic Declination at the county-seats, January 1, 1910; letter of Fish Commissioner of the United States Bureau of Fisheries relating to the conditions of the North Carolina fish industries; report of the Survey for the North Carolina Fish Commission referring to dutch or pound-net fishing in Albemarle and Croatan sounds and Chowan River, by Gilbert T. Rude, of the United States Coast and Geologic Survey; Historical Sketch of the several North Carolina Geological Surveys, with list of publications of each.

Samples of any mineral found in the State may be sent to the office of the Geological and Economic Survey for identification, and the same will be classified free of charge. It must be understood, however, that NO ASSAYS, OR QUANTITATIVE DETERMINATIONS, WILL BE MADE. Samples should be in a lump form if possible, and marked plainly on outside of package with name of sender, post-office address, etc.; a letter should accompany sample and stamp should be enclosed for reply.

These publications are mailed to libraries and to individuals who may desire information on any of the special subjects named, free of charge, except that in each case applicants for the reports should forward the amount of postage needed, as indicated above, for mailing the bulletins desired, to the State Geologist, Chapel Hill, N. C.

NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY

JOSEPH HYDE PRATT, State Geologist

ECONOMIC PAPER No. 31

PROCEEDINGS
OF
FIFTH ANNUAL DRAINAGE CONVENTION

HELD AT
RALEIGH, NORTH CAROLINA
NOVEMBER 26 AND 27, 1912

COMPILED BY
JOSEPH HYDE PRATT



RALEIGH
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LETTER OF TRANSMITTAL

CHAPEL HILL, N. C., January 1, 1913.

To His Excellency, HON. W. W. KITCHIN,
Governor of North Carolina.

SIRS:—On November 26th and 27th there was held at Raleigh, North Carolina, the Fifth Annual Convention of the North Carolina Drainage Association. Because of the magnitude which the drainage of our swamp and overflowed lands has reached in North Carolina, the importance of the proceedings of this convention to this work and the close coöperation the North Carolina Geological and Economic Survey has maintained with the Drainage Association, I recommend that the proceedings of this convention be published as Economic Paper No. 31, of the publications of the North Carolina Geological and Economic Survey.

Yours respectfully,

JOSEPH HYDE PRATT,
State Geologist.

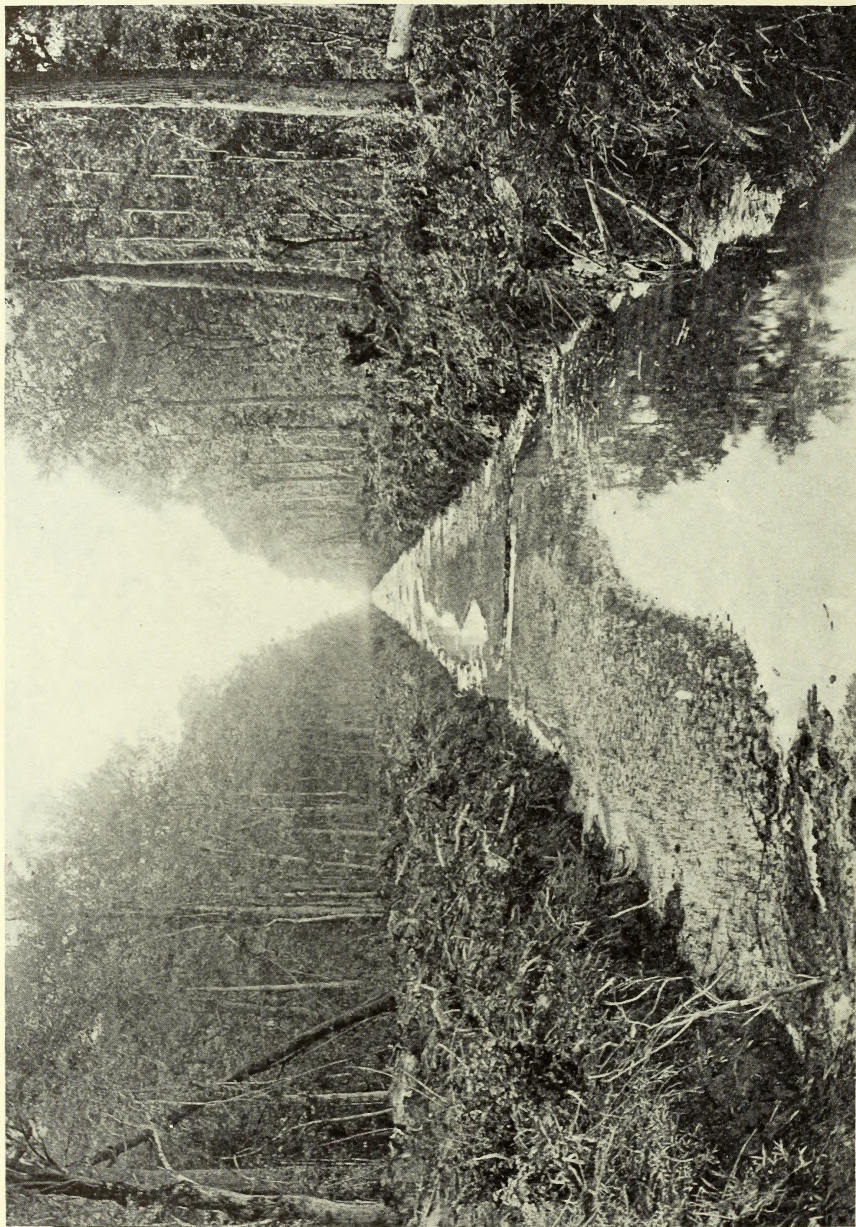
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Completed Drainage Canal in Pantego Drainage District, Beaufort County.

PROCEEDINGS
OF THE
FIFTH ANNUAL DRAINAGE CONVENTION

HELD UNDER THE AUSPICES OF THE

NORTH CAROLINA DRAINAGE ASSOCIATION AND NORTH CAROLINA
GEOLOGICAL AND ECONOMIC SURVEY

Raleigh, N. C., November 26 and 27, 1912

COMPILED BY
JOSEPH HYDE PRATT, STATE GEOLOGIST

The fifth annual convention of the North Carolina Drainage Association was held in Raleigh on November 26th and 27th, 1912, in the Hall of the House of Representatives. There were two subjects that were constantly being brought up and discussed throughout the sessions of the convention: one, the need of the State's providing competent drainage engineers to supervise the organizing of drainage districts, and the making of preliminary surveys and reports as to the advisability of draining certain swamp areas and overflowed lands; and second, how to make the drainage bonds more salable. There were full discussions on both these subjects and the opinions and ideas of the convention were embodied in resolutions drawn up and passed unanimously.

The arrangements for the convention were made by the Raleigh Chamber of Commerce and the Merchants Association, and to these commercial bodies the North Carolina Drainage Association and the Convention are indebted for their splendid work and their part in making the convention a big success.

MORNING SESSION—Tuesday, November 26, 1912.

The first session was called to order by the President at ten-thirty on Tuesday morning, November 26th, and the Convention was opened with prayer by the Reverend Milton A. Barber, Rector of Christ Church. Following the prayer an address of welcome was made by Governor W. W. Kitchin on behalf of the State. In introducing Governor Kitchin the President stated that the North Carolina drainage law was passed during the first year of Governor Kitchin's administration and was advocated and supported by him, and it must be considerable satisfaction to him to feel that this measure, in which he was interested, has been the means of reclaiming many thousands of acres of swamp and

overflowed lands, and is now pronounced by all as one of the most important acts passed by the General Assembly of North Carolina in regard to economic questions. Governor Kitchin, in welcoming the delegates to the State Capitol, expressed his appreciation of the work that the Association had done in advancing drainage work throughout the State and expressed his belief that it would not be long before all the swamp land that was practical to be drained, would be reclaimed and brought under cultivation, thus adding very greatly to the wealth of the State.

Mayor James I. Johnson extended a most cordial welcome to the City of Raleigh, and Hon. Albert L. Cox, President of the Chamber of Commerce, extended in the name of the business men of Raleigh an invitation to the delegates to feel free to call upon any of the business men for anything they wanted, and stated that as a business proposition the draining of the swamp lands appealed to the business men of Raleigh and that a number of them had taken an active interest in drainage and had become owners of reclaimed swamp lands.

Wake County extended a welcome to the delegates through Hon. John A. Mills, Chairman of the Board of County Commissioners, who stated that the county was beginning an era of progress that would place Wake County in the lead of the progressive counties of the State.

The response to the addresses of welcome was made by the President of the Association.

Following the addresses of welcome, Hon. H. L. Godwin, Congressman from the Sixth District, addressed the Convention on the subject of "How to Secure Drainage." Mr. Godwin spoke in part as follows:

"I attended the first Drainage Congress at New Bern in 1908 and the National Convention at Baltimore about the same time. There was a great deal said about drainage, but the people who live in the swamps, who use the hoe and the plough, want to know how to secure drainage. It is a great question, and we have passed the point as to its advisability. The day of discussion as to whether it is a good thing or not has passed and the question now is with many, How can it be accomplished?" Mr. Godwin recommended the employment by the State of expert drainage engineers as one of the first steps to be taken to increase the reclamation of swamp lands, and stated that we ought to get behind our representatives who are going to the Legislature this winter and keep after them until they establish a drainage office.

"Many of those who own swamp lands come to me and ask me personally to drain their land. They ask me to come down and go over their farms and have a bill passed through Congress to drain their particular land. They ask me to say that this land will pay back in taxes the cost of the drainage. This sort of appeal comes from communities of intelligence, of prosperity and plenty, and of patriotism, and the reason they are making such an appeal is that they do not know how to get what they want and what they are able and willing to pay for themselves. My advice would be to make our representa-

tives pledge themselves to the enactment of drainage laws that will fulfill all that is required to drain our swamp lands, and to begin this at once."

At the close of Mr. Godwin's address committees were appointed as follows:

Resolution Committee—Lawrence Brett, of Wilson, *Chairman*; O. L. Clark, of Bladen; G. B. Sellers, of Robeson; B. F. Keith, of New Hanover; J. S. Squires, of Mecklenburg; H. C. Hosier, of Currituck; J. J. Woodley, of Washington; W. C. Manly, of Martin.

Committee on Nominations and Next Meeting Place—W. W. Wetmore, of Robeson, *Chairman*; George Boyd, of Wilson; Maj. W. A. Graham, of Wake; W. S. Pharr, of Mecklenburg; C. R. Hudson, of Wake; R. J. Smith, of Fayetteville; M. F. H. Gouverneur, of Wilmington; M. P. Moore, of Iredell; C. M. Miller, of Salisbury.

Membership Committee—W. K. Allen, of New Hanover, *Chairman*; R. O. Bagley, of Currituck; C. H. Haynes, of Stokes; W. H. Beard, of Cumberland.

Secretary's Report.

The Secretary, Mr. George R. Boyd, of Wilson, N. C., called attention to the published report of the last convention, which was submitted as the regular report of the Secretary, and as such it was approved by the Convention. Mr. Boyd also explained in some detail the general drainage work throughout the State and the different districts with which he is connected, and called particular attention to some of the difficulties that exist in regard to the organization of drainage districts. He emphasized particularly the need of the petitioners and others, in organizing the drainage districts, to fulfill every requirement of the law, as upon their doing this depends the success of the district and the salability of the drainage bonds.

Treasurer's Report.

The report of the Treasurer was read and approved. This showed an expenditure of \$55.30, with receipts of \$83.63, leaving a balance of \$28.33. The report was audited by B. F. Keith and George R. Boyd, Auditing Committee.

The reports of officers were followed by an address by Mr. M. V. Richards, Land and Industrial Agent of the Southern Railway.

Why Every Citizen of North Carolina Should be Interested in the Reclamation of Swamp Lands.

BY M. V. RICHARDS, LAND AND INDUSTRIAL AGENT, SOUTHERN RAILWAY.

One of the best testimonials to the character of North Carolina people, if any testimonial is needed by them, is found in the efforts they have made, through individual and coöperative work and legislation and executive activity, to further the development of the State, and to advance the general prosperity, furnish education and give greater opportunity to all the citizens.

These efforts are shown in the work of the State agricultural and geological departments, the improvement of the school facilities, the fine work of the agricultural colleges and experiment stations, in the movement for better roads, in the activity of commercial and other bodies in advertising the resources of the State, and now in this movement to put into profitable cultivation the waste lands through proper drainage systems.

North Carolina has a wealth of land which is not yet fully improved, which is still unproductive, and which must be made productive before the State reaches anything like the position it should hold, before the people of North Carolina will be doing their full share toward keeping up the general prosperity of the country and advancing the general welfare. Some of this land can be put into use without reclamation and there are undoubtedly some million acres whose productiveness can be largely increased by proper handling. The State and country, however, need the reclamation of every idle acre possible. There can not be too much tillable land.

The drainage question is an important one in most of our States. In North Carolina, where a good percentage of the total acreage is of overflow and swamp land, the question becomes of the highest importance. It means much, very much, in the future progress of the State and of all parts of the State. The drainage problem you have is not one concerning the eastern coastal district alone. It has been repeatedly pointed out that it concerns the Piedmont and even the mountain districts.

FARM VALUES AND AGRICULTURAL RETURNS.

I want to call your attention to a few figures relating to North Carolina agriculture. The value of all the crops grown in the State in 1911, which are included in the reports issued by the United States Department of Agriculture, amounted to \$116,000,000. Included in the list are cotton, corn, tobacco, wheat, hay, oats, potatoes, rye, buckwheat, and rice. The value of the butter and cheese produced, of eggs and poultry sold, of fruits and vegetables grown, and of the wool clipped, is not included, for no returns are collected on these farm and orchard products. They probably amounted in value to \$5,000,000 additional. On January 1, 1912, the value of horses, mules, cattle, sheep, and swine on farms was over \$37,000,000. If the live stock sold in 1911 amounted to \$10,000,000, there was a total value of farm and orchard products in North Carolina in that year of not less than \$130,000,000.

The census of 1910 gives the value of improved and unimproved farm lands in the State at \$343,165,000, and of all farm property, including lands, buildings, implements, animals, poultry, and bees, at \$537,716,000.

I give you these figures as the basis of the point I wish to emphasize—the value the reclaiming of swamp and overflowed lands and of proper draining of other lands would be to your State.

THE MEANING OF DRAINAGE.

The total land area of North Carolina is 31,293,600 acres. According to the government figures the swamp and overflowed lands within the State amount to 2,400,000 acres, or about one-thirteenth of the whole land area and nearly one-ninth of the total of 22,439,129 acres of improved and unimproved farm lands. The improved farm lands in 1910 amounted to 8,813,056 acres, or less than three and three-fourths times the acreage of swamp and overflowed

lands. Probably one-half these swamp lands can be reclaimed and made into the richest and most valuable farm lands of North Carolina. Think of the returns to the State through their proper drainage! What it would mean may be judged from recent estimates from the United States Reclamation Bureau in irrigation works for the arid lands of the west. The total number of acres already reclaimed by the government's irrigation projects is estimated at 2,000,000, or 400,000 acres less than the area of your swamp and overflowed lands. As a result of this reclamation land values have increased more than \$120,000,000, which is more than one-third the total value of all farm lands in North Carolina. The advance in value of your swamp and overflowed lands would be equally as great, for your reclaimed lands will be of the most productive kind, while their value is enhanced by their location on the Atlantic seaboard and near to the greatest markets and greatest ports of the country. As a result of this irrigation work, crops have been grown on these lands in one year to the value of \$17,000,000, approximately six thousand families have found homes, and not less than twenty-five thousand people have been added to the population of the cities, towns and villages. Even greater results would accrue from the reclamation of the swamp lands of North Carolina. One million acres of these lands will provide no less than twenty-five thousand forty-acre farms, enough for that many families. As a large proportion of them will become truck farms, where the most intensive cultivation may be carried on with large returns per acre, it is likely that even a much larger number of families will find homes on them. If 1,000,000 acres of these lands were devoted to corn alone, they would easily produce in a single year, at only thirty bushels to the acre, 30,000,000 bushels, or three-fifths of the entire crop of the State last year, which was worth to your farmers \$40,000,000.

The character of these lands is such that the average yield by any kind of good farming ought to be fifty instead of thirty bushels to the acre, and that yield would mean as much corn as you produced in the whole State in 1911 or in 1912. If devoted to cotton, a million acres of these lands would double the value of the North Carolina cotton crop, for the yield on such rich lands will certainly be a bale to the acre. Acres devoted to potatoes and to general truck crops would give returns much greater per acre.

I have no doubt that the reclamation of these lands will increase the annual value of your crops by \$50,000,000 a year, or 40 per cent more than the present value and amount of all your farm and orchard crops. That would mean an immense increase in the business of the State, great growth to your cities and towns, and an added prosperity which would put you in a position you have never before known. The cost of the reclamation of 2,000,000 acres of arid lands in the West has been \$70,000,000 in the past ten years, or \$35 an acre. The cost of draining your swamp lands will be very much less than that, certainly not over one-third as much.

OF VALUE TO THE WHOLE STATE.

While these swamp lands for the most part lie in the eastern portion of the State and the greater benefits will be to that section, the whole State will be the gainer. One section can not develop and prosper without bringing growth and prosperity to all the other portions of North Carolina. The addition of seventy-five or one hundred million dollars to the taxable value of the State, no matter in what section it is, must be of great value to all your people.

The people who locate in these Eastern Carolina lands, and in the Eastern Carolina cities and towns, will become in good measure the good customers of the people in other sections. They will buy the apples from the mountain section and the products of the factories of the Piedmont section; they will join with the people and the taxpayers of all other sections in pushing any good work for the advancement of all the State and the support of all State institutions.

The drainage question has a deeper and a wider significance, and you gentlemen have a larger purpose in view than simply the reclamation of the swamp lands of the eastern border country. They are not the only lands which need or which can be benefited by drainage. The lands along your river bottoms extending into the Piedmont and even into the mountain districts, subject at some season to overflow, can not attain their full value nor give the crop yields of land which will be improved by drainage, the effect of tile and other drainage. In every section of the country where the farm owner has properly drained his land, the evidence is all in favor of it. The benefits arising from the doing away with the little wet spots on the farm, putting the land in such condition that it will not be drowned out, will be very great. I have no doubt that the farmers of North Carolina can add many millions annually to the value of their crops by proper tile and other drainage.

In sections of the Piedmont region, like Mecklenburg, Iredell, and other counties, landowners who have made use of their dredge in draining low lands along streams, which at times are subject to overflow, are demonstrating the wisdom of such land improvement. They are adding many dollars to the selling price of their lands because they are greatly increasing the crop yield. They are doing this, too, at the cost of a few dollars an acre, a cost which will be returned to them in a single wet season.

If you add to the increased crop yields and farm returns and the increased value of the lands which will come from the reclamation drainage of the swamp lands of the State, the gain in farm returns and in farm land values which will follow the proper drainage of other lands which are in need of drainage, it would be conservative to estimate the increased returns from North Carolina farms in a single year through drainage at \$60,000,000 or more. In other words, the annual value of your farm crops would be practically fifty per cent more than now. Your farm land values would grow from \$537,000,000 to \$750,000,000, without taking into account the natural increase of value through growth of population and through regular development. The added \$60,000,000 or more of farm crop returns will mean that much more money yearly to the development of your towns and cities, the building up of your industries, the making of better homes, and for the support of your schools and State institutions. All this will mean a steady improvement in the condition, a steady added prosperity of all your people.

AS A HEALTH MEASURE.

In addresses which this Association has listened to in the past, attention has been called to the great improvement in health conditions which would follow the drainage of the swamps and of the overflowed lands and of the portions of other lands. There are parts of the South, and they are found in your State, where malaria is a great curse to the people. Swamp lands and the overflowed lands of your stream bottoms are great breeders of fever.

The deadly mosquito, with its germ carrying capacity, is a constant menace to the public health. Not only do the malarial sections and districts suffer, the whole State suffers in a way, certainly in reputation.

In our work we have always had to combat a general idea which seems to prevail among many people, not only in this country but in Europe, that the South is a region of swamp lands and of malaria. It is said that bad news always travels faster than good. It often seems that the wrong impression lingers longer than the good, and that it is almost impossible to correct false information or wrong ideas which have taken hold of a man's mind. From the fact that malaria and other fevers prevail in some portions of the South, very many people in other sections have formed the conclusion that the whole South is a malarial country, and therefore a good country to stay away from. Of course the people holding this idea are those who have never been in the South. Very frequently their impressions are gained by the experiences of a man in districts that are malarial. The drainage of the swamp and overflowed lands of North Carolina would be of inestimable value to the people in giving them better health conditions.

Mr. B. E. Rice, Land and Industrial Agent of the Norfolk Southern Railroad, wired that on account of a death in his family he would not be able to attend the Tuesday session of the Convention.

AFTERNOON SESSION—Tuesday, November 26.

The afternoon session of the Convention was devoted largely to reports by representatives of the various drainage districts that had been organized throughout various parts of Eastern and Piedmont North Carolina.

Reports of Representatives of Drainage Districts.

At the roll call the following districts responded: The Broad Creek Drainage District of Beaufort County is completed, and Mr. George R. Boyd reported that crops are being harvested from sections of this reclaimed land where last December timber was standing.

Conaby Creek Drainage District of Beaufort County is organized and the preliminary and final reports made. The district is now held up by an appeal from the decision of the Superior Court and the case has been taken to the Supreme Court.

Pantego Drainage District of Beaufort and Hyde counties is completed and many thousands of acres of the swamp land are now cleared and under cultivation. See Plates I, II, and VI.

Buckle Swamp Drainage District of Bladen County has been organized and the dredge is now at work digging the canals.

Cape Fear River and Lyon's Swamp Drainage Districts of Bladen and Pender counties have been completed, and the canals dug. The work has been successful in every way.

Camden Run Drainage District of Camden and Currituck counties

has been organized and the contract let to the Eastern Dredging Company for digging the canals. Mr. C. E. Simms wrote as follows regarding this district:

"We began work in the formation of this district about fifteen months ago. The necessary preliminary proceedings were had, and the complete survey was ordered by the Court about one year ago. This survey was made under the direction of Mr. George R. Boyd, your Secretary, during the winter of 1911-1912, and the final report of the viewers was adopted last April. Four or five of the landowners filed objections to the classification of their lands, but only one of them is prosecuting his appeal, which the Superior Court was unable to hear at its September term. This will carry it over until the March term of that court.

"In the meantime, the landowners elected Dr. Celus G. Ferebee, Dr. S. W. Gregory, and Mr. E. K. Sawyer as commissioners of the district, and they were duly appointed by the court, and organized by electing Dr. Ferebee as president, Mr. Sawyer vice-president, and Dr. Gregory as secretary.

"The commissioners have let the contract for cutting about sixteen miles of main ditches to the Eastern Dredging Company, of Greensboro, N. C., at a price of 7.87 cents per cubic yard for excavation, and the New First National Bank of Columbus, Ohio, now have the purchase of the bonds under consideration, and it is probable that the bonds will be sold in the next few days.

"We hope to see the contractors begin work on these ditches within the next sixty days."

Bear Swamp Drainage District of Chowan County has been organized and the canals have all been dug according to specifications.

Chadbourn Drainage District of Columbus County has been organized and the drainage work completed.

Clay, Red Swamp, and Swift Creek Drainage Districts of Craven County are now in the process of organization.

Dover Drainage District of Craven County has been organized and the contract let to the Brett Engineering Company. The dredges are now at work digging the canals.

Moseley Creek Drainage District of Craven County. A petition has been made for this district and the preliminary report filed.

Flea Hill Drainage District of Cumberland County. The final report of this district has been filed, but the hearing has not yet been held.

Moyock Drainage District No. 1 of Currituck County. Mr. R. O. Bagley of Moyock reported as follows on this district:

"I know of no law more directly advantageous to the farmer than the North Carolina Drainage Law. It enables him to adequately drain his land, and by the method of payment, to pay for the improvement with the increased profits.

"The Moyock Drainage District, which is situated twenty-four miles south of Norfolk, Va., and in the extreme northeast corner of the State, was the first district to be established under the new law. And since there were no established precedents, we necessarily ran against some very tough proposi-



tions, which may be and will be avoided in the districts now being formed and to be formed in the future.

"The district embraces approximately fourteen thousand acres, and contains soil under all conditions of moisture and texture, from medium high to swamp land. In fact, it embraces a part of the Dismal Swamp.

"There has been cut about twenty-two miles of ditch, of an average depth of six and one-half feet, an average bottom width of sixteen feet. The total cost has been about thirty-three thousand dollars, or about three dollars per acre.

"As yet we are unable to show very glowing results. This is due to the undeveloped state of the land and also to the drought during the two years the ditches have been under construction. They have been the driest two years in the memory of the oldest citizens. Yet we have the utmost faith in our work, knowing that we can now farm with certainty, whereas before our losses caused by an excess of water in the soil, some years amounted to fully as much or more than the total bond issue.

"Last year we experimented in a small way. The result was very satisfactory. Just one year after the timber was cut off the swamp and six months after the completion of the ditch, and before the land was cleared of stumps and felled trees, we raised sixty-five bushels of corn per acre without horse or plow. The corn was planted by simply making a hole in the ground, dropping in the grain, and covering with the foot.

"We planted celery on another plat of two acres. Since it was our first attempt it was necessarily an experiment. One of the plats proved unsuccessful. The other was a success and actual sales showed eight hundred dollars worth sold.

"The successful drainage of our lands will not only render it a safe proposition to farm, but will bring with it the possibility of yields heretofore impossible. The commercial value of the land will be increased far in excess of the cost of ditching. An investment in a well drained farm in eastern North Carolina is as good as government bonds and will pay a much higher rate of interest.

"In the end let me say, that those who bear the burdens of bringing a drainage district into existence will meet many obstacles. This will always be so, since by the very nature of the undertaking some lands will be benefited more than others, because they are not all alike and neither do they hold the same relative position to the ditch or ditches. The establishment of a district will necessitate a great deal of tedious work and much tact in dealing with the different people, but in the end you will find that it has been worthy of your best effort."

Muddy Creek Drainage District of Duplin County has been organized but the contract has not been let, as the bonds have not yet been sold.

Beaver Dam Drainage District of Harnett County, which contains 7,000 acres, is now having the final survey made. There is no objection to the preliminary report.

Juniper Bay Drainage District of Hyde County. The final report of this district has been made but the hearing before the court has not yet been held.

Mattamuskeet Lake Drainage District No. 1 of Hyde County. This district has been organized, but as yet the bonds have not been sold; and therefore, the contract has not been let.

Rocky Point Drainage District of Pender County contains about 2,000 acres and has been organized. Work will begin just as soon as the bonds are sold.

Parksville Drainage District No. 1 of Perquimans County. A preliminary report of this district has been made and filed, but as yet there has been no hearing.

Back Swamp and Jacob Swamp Drainage District of Robeson County has been organized, the bonds sold, contract let to the Brett Engineering Company, and the dredge is now at work digging the canals.

Hog Swamp Drainage District of Robeson County. A petition has been circulated for this district.

Lake Phelps Drainage District of Washington and Tyrrell counties. This district has been organized and the contract let to the Brett Engineering Company.

Wayne County Drainage District No. 1 of Wayne County has been organized, bonds sold, contract let to the Eastern Dredging Company, and the dredges are now at work digging the canals.

Toisnot Drainage District of Wilson County was the first district to be completed in the State and the land in this district can not now be bought for less than \$100 to \$125 per acre.

Wilson County Drainage District No. 2 of Wilson County. The final report for this district has been filed, but the hearing has not yet been held.

Cold Water Creek Drainage District of Cabarrus County has been organized, but there was an appeal from the decision of the Clerk of the Court on the final report and the appeal was carried to the Superior Court and argued before a jury. The decision of the jury was in favor of the Drainage District, but an appeal was taken also from this decision and the case is now before the Supreme Court.

Third Creek Drainage District of Iredell County has been organized and the work of digging the canals nearly completed.

Fourth Creek Drainage District of Iredell County has been organized and the dredging work completed.

Clark's Creek Drainage District of Lincoln and Catawba counties was the first drainage district on overflowed lands to be completed and the great results obtained in this district have been the incentive for the organization of many other districts on overflowed lands.

Third Creek Drainage District of Rowan County. A petition has been signed for this district and the preliminary report is now being made.

Mecklenburg Drainage District of Mecklenburg County. A report of this district was made by Mr. W. S. Pharr, who spoke as follows:

"At the outset I will, as briefly as possible, bring out some of the more important features of the Mecklenburg County Drainage Law. It is closely allied with the North Carolina Drainage Law now in force, having some few exceptions.

"The legal steps taken in the organization of the Mecklenburg County Drainage Commission, as well as the constructive methods used in prosecuting the work, are interesting as a type which may be considered by other communities contemplating similar development and having like problems. The work was originally authorized by the General Assembly at the 1911 session in an act providing for the incorporation of a commission composed of five men, to be known as the Mecklenburg Drainage Commission, in which act the powers and duties of the commission are stated in detail. Among these powers was that of assessing the benefits to contiguous property, and that of collecting the amount of these assessments from the owners of such benefited land. This act also established Mecklenburg County as a drainage district. It is provided that an amount annually not exceeding five dollars per acre should be collected until the entire assessment is paid; or, if the total cost of the work is found to be less than five dollars per acre average, the commission is authorized to divide the assessment into proper annual installments, in the discretion of the commission. These provisions of the act, with respect to the method by which the assessment on the land benefited should be made, are of particular interest. The lands to be assessed are separated into five classes. The holdings of one landowner need not be all in one class. The number of acres in each class shall be ascertained, though the boundary need not be marked on the ground nor shown on the map. The total number of acres owned by one person in each class and the total number of acres benefited are to be determined. The total number of acres of each class in the entire creek district is to be estimated as nearly as possible and presented in tabulated form. The scale of the assessment upon the several classes of land returned by the commission, or found by them, is to be in the ratio of five, four, three, two, one; that is to say, as often as five mills per acre are assessed against the highest class, four mills are to be assessed against the next class, three mills against the next, two mills against the next, and one mill per acre against the lowest class. This forms the basis of assessment on benefit to the land. After due notice of these assessments, a day is to be appointed on which the Board of Commissioners will meet to hear complaints of landowners regarding the assessments made. The commission will sit as a body to hear and determine all complaints that may be filed. The right of appeal to the Superior Court of Mecklenburg County, as now provided in appeals in civil action, is specified in the act. The assessment rate will be made up by the commission. After assessments have been finally determined, the collections will be made by the county tax collector along with other taxes. In addition to the specific assessment powers contained in the act, provision has been made for the years 1911 and 1912 that three and one-third cents per one hundred dollars valuation of all property in the county will be collected as a tax to aid in the progress of drainage work. This latter tax creates about nine thousand dollars per year, and, of course, will somewhat lighten the burden on those landowners contiguous to the creeks.

"We are in hopes that the next General Assembly will recognize the importance of this great work, and will at least continue this small exaction from each taxpayer to help along the wide improvement, which benefits our whole county and the city of Charlotte.

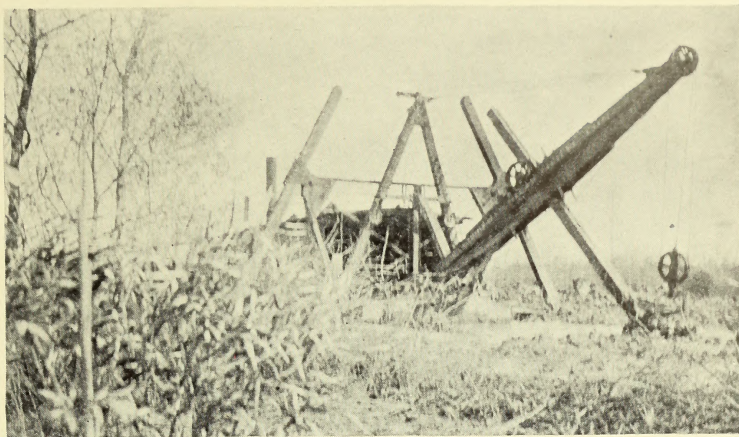
"The dredge boats which we have are each eighteen feet by seventy by five and one-half. They were designed, equipped and builded by the Fairbanks Steam Shovel Company, of Marion, Ohio. The equipment of each consists of a fifty-five horsepower boiler, hoisting and swinging engine, small engine to drive dynamo to furnish electricity for lighting in order to carry on night work, and a dredge dipper of one and one-quarter yards capacity. It is estimated that, under favorable conditions, of course, approximately two hundred feet of channel, twenty-five feet wide and nine feet deep, may be dug each day by one of these dredges. A boat is also provided as living quarters for the workmen. The dredge boats are so designed that they may be taken apart and moved from place to place overland, if desired.

"Active work was begun November 11, 1911, in the dredging of Little Sugar Creek, which courses through the eastern section of the city of Charlotte. About twelve miles of this creek have been dredged. This we consider remarkable progress made, in view of the fact that large ledges of rock have been frequently encountered on this stream. We have twelve hundred feet of solid granite with which to contend and a contractor is now at work removing this rock ledge. See Plate III.

"The width of the canals dredged will average from twenty to thirty feet, with a depth of eight to eleven feet. The cost per mile will depend upon the amount of stone obstruction, but it is estimated at about fifteen hundred to two thousand dollars per mile. The drainage work was planned not only to reclaim the land but to eliminate the sink holes and low places which become filled with waste matter, especially where overflows occur. There are twelve creeks with their tributaries to be drained in Mecklenburg County, and we now have two dredges at work. More than twenty thousand acres of land will be reclaimed which heretofore has been practically valueless; and when the work is completed, it will add to the value of the farm lands to the extent of twenty-five dollars or more per acre; and it is estimated that six hundred and fifty thousand bushels of corn can be raised on these reclaimed bottom lands where an uncertain and unsatisfactory hay crop has up to this time been the only source of revenue from these lands.

"Within the city and its suburbs we have been considerably handicapped. Concrete bridges, steel bridges, water rights for cotton mills, railroads, and other things interfere along the streams. All of these have been and will be in our way. Some weeks ago, we passed under one of the large steel bridges on a public highway, having had to raise this bridge about sixteen feet to allow the dredge to pass under. Just a short distance below the highway bridge we dredged under a very high trestle on the main line of the Southern Railway. The railway coöperated with us to the extent of removing one of the trestle benches. However, this did not give us enough width and we were forced to dismantle part of our equipment in order to pass through. All such things are hindrances which are unavoidable.

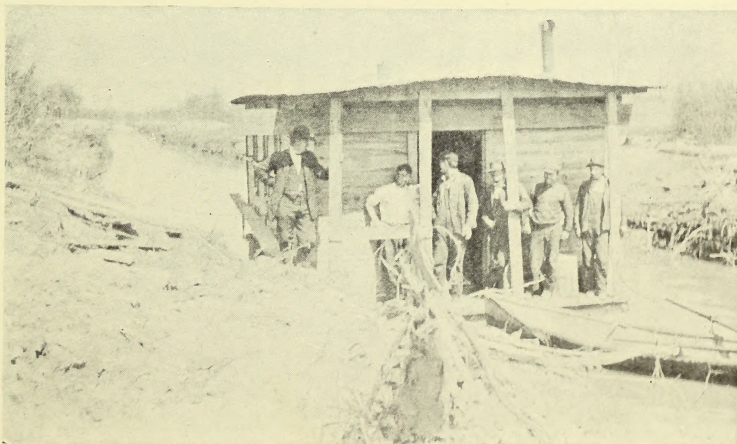
"Naturally we run against some few 'kickers'—it takes all kinds of people to make up a world—but we feel sure when the people see and realize the great benefits they will receive from the drainage and reclamation of the low lands, all will be well. We intend to carry on the work as rapidly as possible; and if conditions should demand it, other boats will be provided to facilitate the plan."



A. Dredge Boat at Work on Sugar Creek, Mecklenburg County.



B. Steam Rock Drill on Ledge in Channel at W. C. Graham's Old Mill, Sugar Creek, Mecklenburg County.



C. Dredged Canal. House Boat of Dredge. Sugar Creek, Mecklenburg County.

There was considerable discussion during the reports regarding the drainage districts, the following delegates taking part in the discussion: Messrs. Boyd, Hanson, Allen, Keith, Thompson, Brett, Eagle, Beard, Bagley, Gouverneur, Pratt, Wetmore, Woodley, Sellers, Miller and Pharr.

Following the discussion of the drainage districts a most interesting paper was read by Mr. C. G. Elliott, Consulting Drainage Engineer, of Washington, D. C., on the subject of the drainage of Haarlem Lake, Holland.

The Drainage of Haarlem Lake, Holland.

BY MR. C. G. ELLIOTT, DRAINAGE ENGINEER.

The low country of Holland, with its populous provinces now reclaimed from the disastrous inroads of the North Sea and from the overflow of the rivers which rise in the German hills and cross it in their course to the ocean, possesses a peculiar charm and interest to the engineer. The skill of the Dutch in the design and construction of dikes, canals, and other works required in drainage and transportation is conceded by all who have an acquaintance with reclamation subjects. Their engineers have for years been looked upon as authorities in that kind of work. Their training has come to them through centuries of the most trying experience imaginable. In fact, the land depends for its very existence upon the efficiency and stability of its reclamation works, the faithfulness and ability of those who are charged with their maintenance, and the vigilance and watchfulness of every citizen. Furthermore, the Dutch are noted for their daring in the wars which they waged to defend the integrity of their native land, for their persistence and industry in the prosecution of peaceful pursuits, and for conservative methods of conducting business enterprises.

The Netherlands, commonly spoken of as Holland, consists of eleven provinces having an area of 12,648 square miles and a population of five and one-half millions. One-fourth of the surface is below sea level and more than one-third is less than three feet above ordinary tide. One-fifth is barren and unproductive, being composed of a series of sand dunes and wastes, sparsely covered by scrubby bushes and trees, the whole presenting as unattractive a view as one often sees. The productive part of Holland is that which is protected by dikes and drained by ditches, a productive and flourishing kingdom veritably snatched from a tempestuous and hostile sea.

HAARLEM LAKE.

The largest and by far the most notable reclamation project in that country is Haarlem Lake. References to this by writers of popular literature are so highly embellished and general in character that but few particulars are given in their writings concerning the plans of the work or the interesting facts connected with their execution. Even a visit to that district fails to impress one with the magnitude and difficulties of the work until he learns from the records the conditions under which it was accomplished. See Plate IV.

The lake was a body of fresh water, oblong in shape but of irregular contour, about fourteen and one-half miles long, eight miles at its greatest width, and thirteen feet deep. It was separated from the North Sea by a strip of

land five miles wide, one-third of which was fertile land, and the balance sand dunes, sparsely covered with scrubby trees. Opposite the north end, about one mile distant to the west, is the city of Haarlem, and on the east, four miles distant, is Amsterdam, the capital and metropolis of the kingdom.

History records that in 1531 this district, which afterwards became a large lake, was an inhabited district in which there were four lakes and three villages. In 1591 one of the villages was inundated and destroyed, and in 1647 the other two disappeared and the four lakes became one, which was afterward known as Haarlemmer Meer, or Haarlem Lake. This lake was then made to serve as a collecting reservoir or basin for the waters of the surrounding lands, which were divided into drainage units called polders. The level of the lake was controlled by natural drainage through sluices emptying into the North Sea in two directions, northward through the Spaarne at Spaarndam, and southward through the river Yssel, a branch of the Rhine, at Katwig.

Severe storms, to which the coast has always been subject, prevented the water at times from passing through the sluices, and this together with heavy rainfall and high winds on the lake, caused disastrous overflows upon the lands of the surrounding polders. For this reason the lake had long been regarded as a menace to the country adjoining it, and even to the near-by cities. In November, 1836, a severe storm caused the lake to so overflow that the waters reached the cities of Leyden and Amsterdam, and submerged ten thousand acres of valuable polders. During the following month another and more severe storm extended the submerged area until it included eighteen thousand acres, which was so long inundated that the lands were not made dry for more than a year.

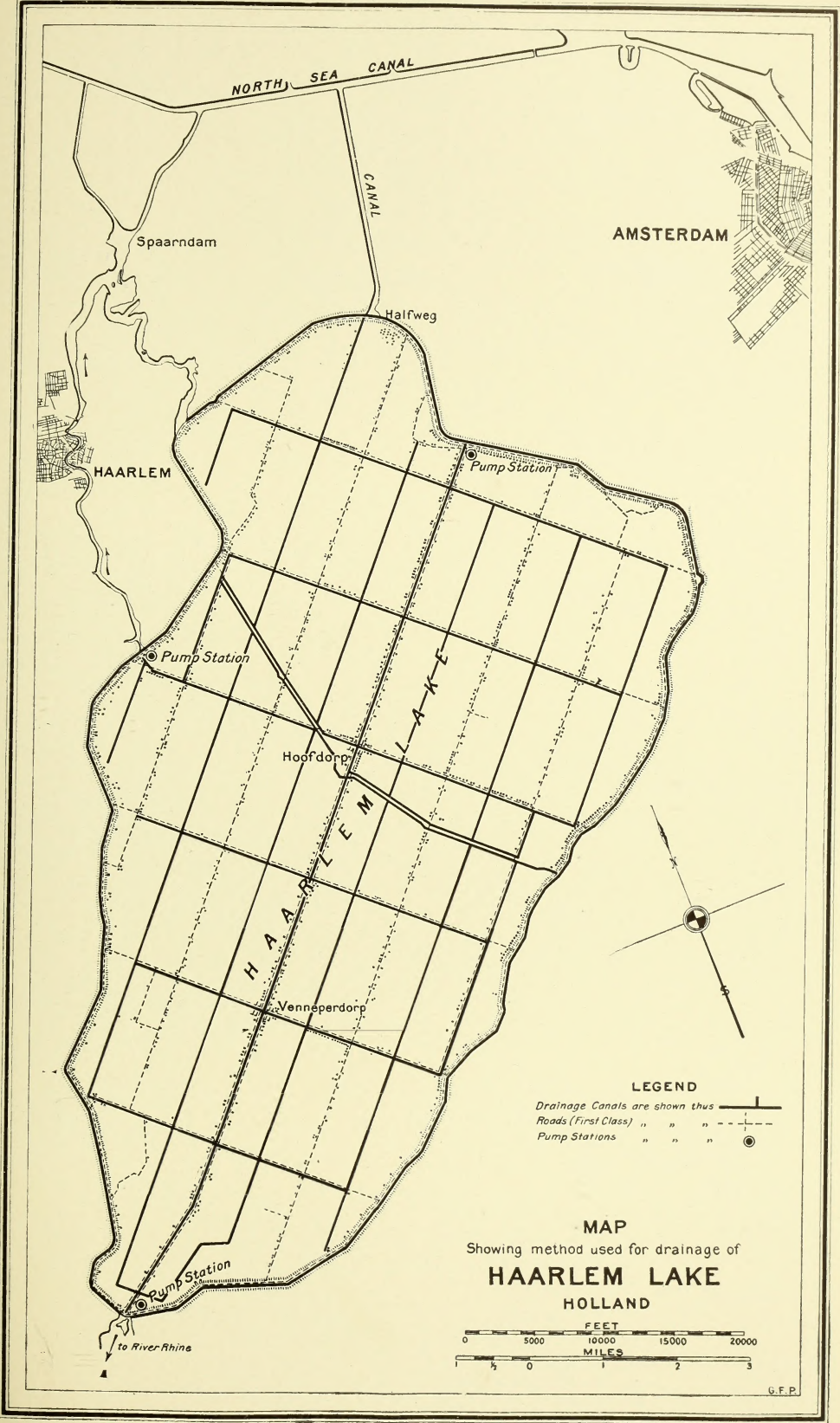
DRAINAGE OF THE LAKE DECREED BY THE STATES-GENERAL.

In consequence of these disasters, and also others of less severity which had preceded them, the States-General, or Parliament, decreed in 1839 that the lake should be drained, and appropriated the sum of \$3,335,000 for the purpose, placing the work in charge of a commission of thirteen, composed of engineers, landowners and state counselors.

This was but the fruition of the agitation and discussion of the subject which had been going on at intervals for two hundred years. As early as 1643 Leeghwater, a millwright, proposed to surround the lake by a dike and a canal and to pump the water from the lake over the dike into the canal by one hundred and sixty windmills, using four lifts. This plan was revived from time to time and the pamphlet describing it is said to have run through thirteen editions, the last appearing in 1838, just previous to the decree of the States-General. Fifteen different and well digested plans are said to have been proposed at various times for reclaiming the lake, among them being that of Baron de Lynden, who proposed to use steam power, the cost of which he estimated at \$3,250,000.

FINAL PLANS FOR THE RECLAMATION.

Prior to beginning operations under the commission, the details of the entire plan which was finally adopted were carefully worked out. A survey of the bottom of the lake was made from the surface of the ice, and the total volume of water that it would be necessary to pump was estimated, including the increase from rainfall and seepage. The size and arrangement of ditches,



number and location of pumping stations, as well as the power that would be required to empty the lake, were carefully determined. All computations of levels were based on the Amsterdam datum indicated by A. P. (Amsterdamsche Peil), which is the standard to which all hydraulic descriptions refer. The zero of that gauge is two feet four inches above ordinary low water and two feet seven inches below ordinary high water.

The preliminary work in this great enterprise is especially notable in that the plan devised to accomplish the desired results was completed before beginning the work and has proven so successful and satisfactory that the same method of drainage is being duplicated in all essential particulars in the plans that have been adopted for the reclamation of the Zuider Zee, which covers an area of 475,000 acres.

THE ENCIRCLING LEVEE AND CANAL.

The first step in the reclamation as planned and executed was to pump the water from the lake. Since this lake covered about forty-four thousand acres and was thirteen feet deep, the work of removing the water and keeping the bed dry permanently was a task of great magnitude, and gave the managers of the enterprise much concern. The plan was to build a bank or levee entirely around the lake, a distance of thirty-seven miles, and construct outside of this a navigable canal into which the water of the lake was to be pumped. When the water in the canal should become higher than the navigable level, the surplus would pass to the ocean northward through the gates at Spaarndam and at Halfweg and southward through those at Katwig. The dimensions of the canal and levee were as follows:

Width of the bottom of the canal.....	95 feet
Width of the top of the canal.....	140 feet
Side slopes	2 to 1
Top of the bank above ordinary high water.....	9.6 feet
Depth of canal from top of bank.....	17.4 feet
Width of top of bank.....	13 feet

A roadway was located between the canal and the levee. The canal occupied 665 acres and the bank with its slopes and the road 1,030 acres, or 1,695 acres were occupied by the two. The levee and canal were begun in 1840 and finished, except the closures, in 1843. Owing to delays in the adjustment of the rights of the owners of the surrounding lands which had formerly drained into the lake, the closures were not completed until 1848, the total cost of the levee and canal being \$807,500.

THE PUMPS.

In the meantime the duty of determining the kind of machinery that should be used for pumping had been entrusted to a committee of three. A careful analysis of the subject convinced the committee that to use wind power would be more expensive and less reliable than to use steam. Three pumping stations were located, one at the north extremity of the lake, one at the south, and the third on the west side, each to have a three-hundred-and-fifty-horse-power plant. See Plate V, A and B.

Contracts were made with an English firm for steam pumps which were larger than any that had been previously manufactured. Each plant consisted of a group of plunger or bucket pumps operated by huge reciprocating

beams. The first and largest of these, called the "Leeghwater," was set up at the south end of the lake in 1845, three years before the outside canal was completed, and thoroughly tested. The engine, which was three hundred and fifty horsepower, worked eleven cylinder pumps, each sixty-three inches in diameter, the plunger having a ten-foot stroke and a speed of ten strokes per minute. One stroke of the eleven pumps combined will raise 2,376 cubic feet of water a height of sixteen and one-half feet, and in a run of twenty-four hours will raise 1,069,000 tons of water, which is delivered on a large floor from which it flows in a great sheet or cascade into the receiving canal at the side. The test of the Leeghwater proving satisfactory, orders were placed for an eight-cylinder pump to be placed at each of the other stations, the north one being called the "Lynden" and the west one the "Cruquis." No little difficulty was encountered by the contractors in securing foundations for the buildings and pumps. They were of great weight and the methods of excavating treacherous earth were not so well perfected then as now. The original Leeghwater and Cruquis pumps are still in service, but the Lynden has been replaced by two fifty-eight-inch centrifugal pumps with a six-hundred-horsepower engine. Only one of these pumps is ordinarily operated, the second being held in reserve for emergencies.

PUMPING THE LAKE DRY.

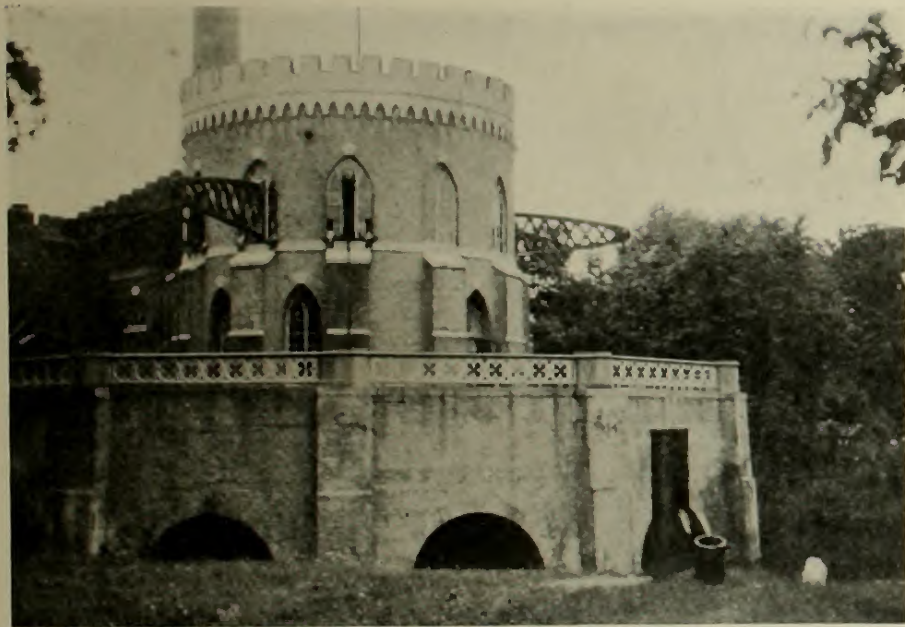
The outside dike and canal having been completed, the pumps were set to work—the Leeghwater in June, 1848, the Lynden in March, 1849, and the Cruquis in the following month. The lake was pumped dry in July, 1852, the plants combined being occupied thirty-nine months instead of fourteen, as was originally estimated. The time was prolonged by reason of delays occasioned by time required in cleaning the valves of silt, extending the ditches so that the water could reach the pumps, and other unforeseen contingencies. It is claimed that the pumps only worked actually nineteen and one-half months. The average lowering of the surface was four inches per month, each inch in depth representing four million tons of water. In the winter season when evaporation was least, the rainfall in some instances gained on the engines. The total quantity actually pumped was 831,000,000 cubic meters, against 764,000,000 originally calculated. Great as was the accomplishment of this long desired work, the commission was content to enter upon the records under its date the laconic statement, "The lake is dry."

INTERIOR CANALS.

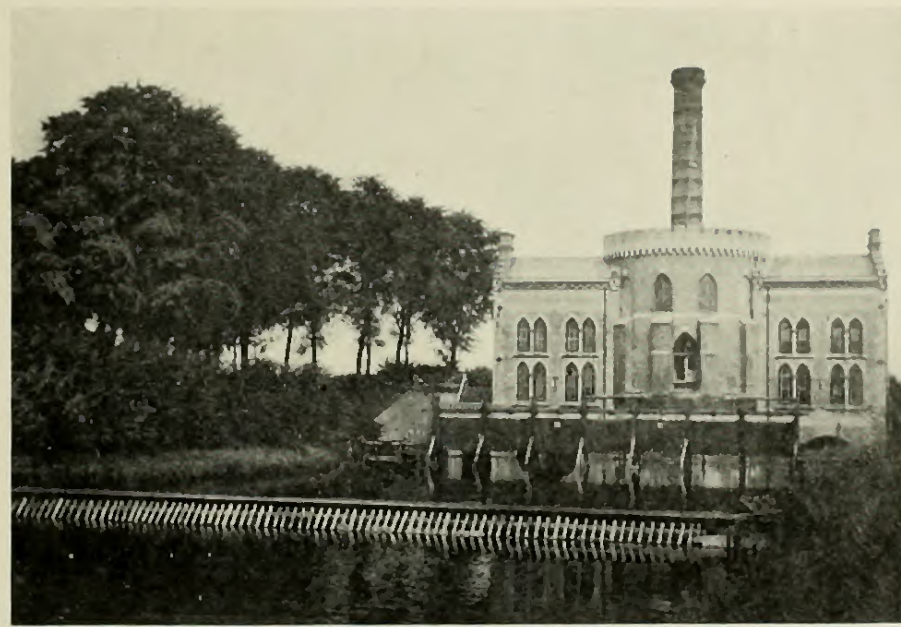
In establishing the depth of ditches it was decided to fix the height of the water level at thirty inches for grass and pasture lands and forty inches for land in cultivated crops. Some portions of the lake bottom are sandy and there it has been found desirable to allow the water to rise within twenty-four inches of the surface. After surplus water has been removed from a soil shrinkage and settlement takes place the amount depending on the kind of land. The bottom of the lake being quite firm, thirteen and one-half inches in depth was allowed for this shrinkage.

The depth of ditches and soil water lines were established on the above basis.

Two main or engine drains eighty-two feet wide on the bottom were made, one north and south through the middle of the lake bottom and the other east and west across it, leading to the three pumping stations. Main ditches were



A. The "Cruquins" Pumping Station. Still Operating the Pumps Originally Installed.



B. The "Lynden" Pumping Station. Now Operating Centrifugal Pumps. (Rear View.)



C. Wheatfield on Haarlem Lake, 1908.

then made parallel to the engine drains eighteen inches less in depth than they were and twenty-six feet wide on the bottom. Those running north and south were one and one-quarter miles apart and those east and west were placed at two and one-third-mile intervals. The grades of all the ditches were level, the velocity of flow being produced by the slope of the surface of the water in the ditches caused by drawing the water down at one extremity; two inches slope per mile on the surface is allowed and is considered sufficient to produce the required velocity.

The roads which were located midway between the main ditches north and south had a large ditch on one side and a small one on the other, thus adding to the number of ditches that serve the land. Roads were also made along the east and west main ditches.

The land between the main ditches was then divided by what are called boundary ditches into fields of fifty acres, each being two hundred metres wide and one thousand metres long or 656 feet by 3,280 feet. These ditches, one metre or thirty-nine inches deep and sixteen feet wide on top, constituted outlets for the field ditches which were made to suit the kind of land and crops grown upon it.

It will be observed that a large area of the land is taken up by ditches. Where drainage is accomplished by machinery operated by steam power, dimensions of the ditches must be designed with reference to the economical working of the engines. The drains leading to the engines and also the main cross ditches connecting with them act not only as channels for carrying the water to the engines, but as reservoirs to collect and hold the water when the engine are not running. They are consequently made of greater dimensions than would be required for discharging capacity if they operated as gravity ditches only. When steam is once up it is not economical to allow the engines to stop for water to gather, because the ditches are not large enough to keep them supplied. Experience rather than figures dictates that in Holland and in the level districts of Eastern England where pumps are required in draining, from one-twentieth to one-thirtieth of the surface should be occupied by ditches.

The water line of the soil or depth of drained soil in the fields distant from the main drains is economically controlled by making the distant ditches of less depth than the mains, so that when the water is lowered to the desired limit in the mains the smaller ditches will be nearly or quite empty. Hence it is that the depth of the main ditches must be determined with reference to the depth which it is required to reduce the water table of the soil and also to the distance of the outlying fields from the main drains.

LENGTH OF DITCHES.

The following schedule presents in concise form the extent of the works which were required in the reclamation of the district:

Length of encircling canal and levee.....	37	miles
Total length of large engine canals.....	18.6	miles
Total length of main canals.....	93.1	miles
Total length of all canals and drains.....	750	miles
Total length of roads.....	122	miles
Number of bridges.....	65	
Number of pumping plants.....	3	

The total area resulting from the reclamation as given by one authority was 42,300 acres exclusive of drains and roads which occupy 3,062 acres, over one-half of which was used by the outside canal, bank and road.

COST OF RECLAMATION AND PROCEEDS FROM THE SALE OF LAND.

It should be understood that this enterprise was undertaken and executed by the State as a public measure for the purpose of protecting the property of citizens, and incidentally to safeguard and increase the public revenues. The government proposed to drain the lake and reimburse itself as far as possible by the sale of reclaimed land.

Authorities differ somewhat in their statements of the actual area of land made available and also with reference to the total cost of reclaiming the lake. The following figures are taken from a report of "Drainage and Pumping in Holland," by A. L. Webb, an English irrigation inspector, published at Cairo in 1897. Mr. Webb had access to the original official records, and I believe gives the most complete statement of the case published in English.

After the completion of the reclamation the lake bottom was sold by the government at public auction, at prices ranging between \$63 and \$130 an acre, the average price for the entire lake bed being \$80 an acre.

The amount expended in actual construction.....	\$3,907,500
Interest charges, commissions, and amortization of capital.....	1,838,250
<hr/>	
Total cost of reclamation.....	\$5,745,750
Amount derived from sales of land, rents, etc.....	3,907,000
<hr/>	
Net cost to government.....	\$1,838,750

As a result Mr. Webb says that 43,000 acres were added to the taxable area of the kingdom and the danger of overflows from the lake on the adjoining lands was forever eliminated.

Using these figures it appears that the cost of the actual work of reclaiming the lake was \$90 an acre. Adding all expenses actually chargeable to the project the cost was \$133 an acre, and the net cost to the government after credits were deducted was \$42 an acre. It should be said in this connection that Col. George E. Waring in his description of the work finds credits enough to reduce the cost to the government to \$10 an acre.

It should be remembered that it was fifteen years between the beginning of the work in 1840 and its completion in 1855, during which time interest was accruing, and when for any cause pumping was delayed the amount to be pumped by reason of rainfall and infiltration was increased. In 1856 the commissioners turned over the entire reclaimed district to the Hydraulic Administration since which time it has been known as the "Haarlemmer Meer Polder."

COST OF OPERATING.

The average rainfall is 32 inches; the maximum 40.16 inches, and minimum 26.7. There are occasional instances on record when the rainfall for a single month was as much as six inches.

The pumps are usually operated about ninety-four days of twenty-four hours in a year, and when all are working they remove one-fourth to three-eighths inches of water in depth from the entire district in twenty-four hours. The annual tax for pumping and maintenance of the main ditches is about eighty cents per acre.

The control of the drainage works is in the hands of a board consisting of a president and six members appointed by the sovereign, and a committee elected by the proprietors, including an engineer. With the exception of the small boundary and field ditches, the entire works are maintained and operated under the direction of the administration which has power to levy taxes on the properties for that purpose. All ditches must be kept in perfect order so that they will deliver their water freely to the pumps. Any neglect in this regard would result in the flooding of parts of the territory while others would be well cared for.

The works for the drainage of the lake deliver the water into the "Ring-vart" or encircling canal. During a considerable part of the year the surplus in the canal flows by gravity through sluices into the North Sea, but during a part of every year the surplus must be lifted by pumps a second time. For this purpose a large pumping plant is located at Halfweg at the northern extremity of the lake which raises water into a canal which connects with the North Sea Canal; a second at Spaarndam which sends the water into the same canal, and the other at Katwīg which controls the height of the water at the south end of the lake. The pumps at these stations are of the scoop wheel pattern operated by steam. A part of the cost of operating these secondary stations is charged against the property in the lake.

GENERAL RESULTS.

The drainage of Haarlem Lake was justly regarded as a great achievement. No drainage undertaking of equal magnitude had been worked out which would serve as a guide or precedent, and thus relieve the engineers and commission of that feeling of uncertainty which always attends the inauguration of new and untried methods. The sentiment which prevailed when the work was completed was forcibly expressed by an inscription on a medal which was struck off by the government. It is in Latin, but freely translated reads: "Haarlem Lake, after having for centuries assailed the surrounding fields to enlarge itself by their destruction, conquered at last by force of machinery, has returned to Holland its 44,280 acres of invaded land. The work commenced under William I in 1839 and has been finished in 1853 under the reign of William III."

We who are acquainted with modern equipment for excavating drainage canals must draw somewhat on the imagination to appreciate the labor involved in draining Haarlem Lake. The tools were the shovel and the wheelbarrow, but they were wielded by the hardiest and most indefatigable laborers. It is recorded that as many as two thousand of them were at one time engaged upon the work.

But not only does the construction of this vast improvement command our admiration, but its faithful and painstaking maintenance for more than half a century is equally deserving of praise. Now, after more than fifty years of existence as a reclaimed district, the land presents a charming view and a pleasing illustration of agricultural thrift. About 16,000 people make their homes within the boundary of the Polder in near view of the spires of the metropolis of the Kingdom. Commodious farm buildings in which all the farm products are safely housed stand along the public roads while two towns in the interior do a thriving business. The famous North Sea canal, through which the commerce of nations passes daily, is only three miles north, thus bringing the reclaimed district in close touch with the mercantile and industrial world.

Haarlem Lake is one of the best drained districts in the Netherlands, and for that reason it is largely devoted to cultivated crops which are conceded to require more thorough drainage than pastures and meadows for which Holland is famous. Grains and root crops flourish luxuriantly, only about one-quarter of its land being in meadow. The inconvenience of the small field ditches is appreciated, and they are being replaced in a few instances with tile drain, which permits level culture and the utilization of all the land. See Plate V, C.

Land values have fluctuated greatly. As before stated, when first reclaimed the entire lake bed brought an average price of \$80 an acre. Records show that in 1881 values ran from \$225 to \$300 an acre. In 1896 Mr. Webb placed the average value at \$175 an acre, and rentals at \$12 to \$15 an acre, with an average for the entire lake of \$8.75 per acre.

ENGINEERING DEDUCTIONS FROM HAARLEM LAKE DRAINAGE.

From the experience derived from this work the Dutch engineers have obtained data upon which they have formulated the plans for draining the Zuider Zee, which prior to the thirteenth century was a lake, but since has been a shallow bay covering 475,000 acres, in which the water is about eleven feet deep.

The following are the general data upon which the dimensions of the drains for the Zuider Zee project have been based: (a) The depth of water to be removed from the entire surface in twenty-four hours is assumed to be .25 to .27 inches. (b) The level of the water in the minor drains should be .8 to 1 metre (26 to 39 inches) below the surface of the land. (c) The slope of the water surface in the drains should be 3-4 inch to 1 1-8 inch in 3,280 feet = 1.25 inch to 1.8 inch per mile.

The arrangement of the ditches is as follows:

- (a) Central canals leading direct to the pumping stations.
- (b) Main ditches running longitudinally and transversely at distances apart of 2000 metres ($1\frac{1}{4}$ miles).
- (c) Roadway drains running parallel to the main drains, but midway between them, making squares 1000 x 1000 metres (.6 mile by .6 mile).
- (d) Boundary and cross drains at distances of 200 metres (656 feet) making squares 200 x 200 metres.

In designing the depth of the drains for this project it is assumed that the water level in the boundary drains shall remain 1 metre (39 inches) below the surface of the land.

The central ditch is 4.0 metres (13.1 feet) deep and 20 metres (65.6 feet) wide on the bottom.

The main drains 2.3 metres deep (7.5 feet) and 5 metres (16.4 feet) wide on the bottom.

The boundary and cross drains are 2 metres (6.5 feet) deep and .50 metre (19 inches) wide on the bottom.

The side slopes of the central and main ditches are $1\frac{1}{2}$ to 1 and for the other 1 to 1.

The ditches under this arrangement will occupy about one-thirtieth of the surface of the land and will require timely attention to keep them free from vegetation, which retards the flow toward the pumps. The reservoir capacity of the ditches is an important feature of all drainage work where pumps are employed. The fall of the ditches toward the pumps should be small, otherwise the water will not remain distributed over the entire tract and

the level be reduced uniformly as the pumps continue to operate, but it will rush toward the pumps to the injury of the lands in their vicinity, and will cause the land in the distant fields to dry too quickly.

To those who are inclined to seek information from every source concerning successful reclamation, the Holland drainage work offers a most instructive field for examination. To the writer, the care with which the plans were developed and executed and particularly the provision made for the management and maintenance of the works which had cost so much are the most impressive features. A comparison of the controlling conditions in Holland and this country shows many economic and physical differences which will necessitate some modifications of Dutch methods when the attempt is made to apply them to our own country. It is a fact, however, that the tendency of the present in America is toward similar substantial and enduring improvements, and many of the superficial works earlier constructed in this country are being supplanted by those of a more thorough and permanent character.

It may be said for our encouragement that the opportunities for reaping benefits from the reclamation of American wet lands are far greater than those found in Europe. Our more fertile lands and salubrious climate; our machines and methods for making the cultivation of the land less laborious; and the many agencies which make homes on the farm more attractive to cultivated people, all place us in advance of the rural people of the European countries, as far as opportunities for development are concerned. We can not afford to disregard the experience of Holland, England, and other countries which have spent vast sums of money in reclaiming areas which are now permanent sources of wealth to their citizens as well as to the nations. While a servile and unintelligent imitation of the methods there used is to be avoided, they may teach many lessons that will prove valuable to us in our efforts to develop the resources of our country which are as yet unknown and unsuspected.

The next address was by Mr. M. W. Thompson, President of the Eastern Dredging Company, who spoke on the subject of "North Carolina Drainage Bonds."

North Carolina Drainage Bonds.

BY MR. M. W. THOMPSON.

While the North Carolina drainage laws are not so complete in all details as those of some other States, they have been found ample to secure the desired results, except in their provisions for issuing bonds to provide the necessary funds to carry on the work of drainage, and in this particular we find some radical differences from the laws in force elsewhere, and practically all of the districts in the State have had trouble in disposing of their bonds promptly, and some districts have had their work seriously delayed by reason of this. A résumé of section 34 of the North Carolina Drainage Laws shows:

1. Bonds may be issued for the full amount of unpaid assessments.
2. Bonds shall bear interest at the rate of six per cent and can not be sold below par.
3. That if any installment of principal or interest shall not be paid when

due, and such default shall continue for a period of six months, the holder of the defaulted bonds shall have the right of action for amount due and costs.

4. Bonds are exempt from county and municipal taxes from 1911 to 1925.

Now, under the above provisions for issuing bonds, it has been found in most cases that bonds are not sufficiently attractive for buyers to pay par for the same, and the commissioners under the law can not sell the bonds for less than par, thus placing them in an embarrassing position and making it necessary, in order to consummate the sale, to allow a commission to some one to handle the bonds, or to allow an unusually large examination fee, or make arrangement by which the actual purchaser of the bonds would pay less than par for them.

The intention of the framers of the act was to make the bonds attractive and the money for the work available with as little delay as possible, and this section has already been amended to provide for fifteen days' notice of issuance instead of thirty days' notice in the former section. Let us consider for a moment, therefore, the reasons that a six per cent bond, amply secured and not liable for county or municipal taxes in this State, fails to attract buyers at par, and the remedy therefor.

The three investment qualities that receive the most consideration when investigating a bond issue are security, income, and marketability. Obviously all three can not exist in a high degree in the same paper. If the investment is safe it can not return a high rate of interest and at the same time have a broad and active market, for such a market implies competitive demand, and the competition for a security that was once of safe and high yield would immediately bid up the price and thus lower the yield.

Our drainage districts are corporations practically unknown outside of their immediate neighborhood. In this State the entire subject of drainage is a comparatively new one, and in this great State of North Carolina, with its large amount of undeveloped resources, its rapid growth along all lines of endeavor, and with the large opportunities at every man's door for investment in the things he can see that would yield even greater returns than six per cent, there remains very little money seeking investments of the character afforded by drainage bonds, and we have no banking houses in the State deeply concerned in this form of issues even with the tax exemption that these bonds carry.

We have been forced to look outside of the State, therefore for the necessary funds, to that class of bond houses and banking institutions who make a specialty of this class of securities; and of the thousands of houses that handle all of the various issues of bonds, amounting annually to about \$1,500,000,000, a very small number are acquainted with drainage bonds, as all bond houses specialize and buy securities only along those lines with which they are thoroughly familiar. Their prosperity is built on their ability to find and obtain obligations that merit their unqualified approval and a clientèle that has faith in them and their business judgment and probity. These houses, in order to dispose of issues like our drainage bonds, have to put them on a plane of marketability as nearly as possible with active listed securities, for they have to be sold to individuals largely by personal solicitation, which means of course a corps of salesmen who are thoroughly conversant with the details of this class of security, and in order to make sales they have to be in a position to say, that while they make no definite promises, and, except in time of panics, when it may be impossible

to raise money to satisfy everybody, they hope and expect to be so situated at any time to buy back at a fair market price the securities they are offering for sale, should the purchaser for any reason become dissatisfied.

The bond houses who sell drainage bonds so far away from where they are known have to render, therefore, a peculiar service, and there is no business in the country that has placed itself on a more enduring foundation and conducted on a higher scale of business ethics. Their purchasing of bonds can only be made, therefore, after a careful analysis of the district, the land values and the entire proceedings of the district up to the time of issuing the bonds, as their responsibility to the bondholders continues until the bonds are finally paid, and should the purchaser become dissatisfied for any reason, these bonds would be returned to the bond house. As six per cent drainage bonds are sold by these houses at a point or two above par, it is quite evident that they can not pay par for same and render the service above indicated and carry the risks which they do under the present conditions of our law.

There may be failure to meet interest promptly by reason of the negligence on the part of the official having the matter in charge, and in the past few months there have been failures on the part of three issues of North Carolina securities to so meet their interest payment promptly for this reason. There may be failure or refusal on the part of the landowners to pay assessment, which would cause trouble, and under the provision of our law there is no additional security except the immediate land in question, and the bondholder must wait six months and then go to the courts to secure what is justly due him, and this creates an undesirable contingency.

Now in order to increase the security in marketability of North Carolina drainage bonds, I would make the following suggestions:

(1) That the bond issue should be limited to ninety per cent of the total tax available to pay it. This is a provision that has been in force in Illinois for some time and has recently been adopted in Missouri. There is thus a surplus of security afforded the bond and if a small percentage should give trouble in making collection there is still a surplus available without expense and delay on the part of the bondholder to secure what belonged to him.

(2) A centralized administration of the fund as by the State Treasurer, at whose office the bonds and coupons may be payable, is desired by many investors. In this case the State would be considered the custodian only of the tax so collected and should not be held in any manner liable on account of such bonds, and the clerks of the respective counties at the time of making up the tax books and extending the State taxes, should extend on the tax books for collection the amount of the drainage assessment, and the same should be collected with the State taxes by the sheriff. There would thus be some responsible authority who would have the matter in charge, and taxes and funds so collected would be deemed pledged as appropriated for the payment of the principal and interest of the bonds; and the interest coupons or bonds, when paid, should be canceled by the State Treasurer and returned to the corporate authorities of the district that issued them.

(3) The Legislature should give the insurance companies, banks, and others who are required to make deposits with the State Treasurer, the authority to use drainage bonds as legitimate deposits, and also authorize such bonds to be eligible for investment of funds belonging to estates being administered and for the sinking fund and redemption fund of corporations of all kinds.

(4) Have all the bonds, before the same shall obtain validity, presented to the State Auditor, who shall register the same in a book provided for that purpose, the same as for State bonds, who shall certify by endorsement that all conditions of the law have been complied with, and the evidence of that fact, after examination, shall be filed with and preserved by the Auditor.

These suggestions from the viewpoint of those parties to whom we must look to purchase our bonds, if carried into effect, would make bonds sell at par, or possibly at a premium in some cases. However, in the event that some issues even with all safeguards that could be put around them would not sell at par owing to peculiar conditions or fluctuation in the money market, I would suggest amending that part of section 34 which reads that bonds must not be sold at less than par, and have it read that bonds should not be sold at less than ninety-five cents on the dollar.

With the above suggestions in force, districts whose land values offer good security would have no difficulty in securing funds promptly to execute their work, notwithstanding that many of our districts and issues are small and will not attract but very few buyers under the most favorable circumstances.

This address brought out a great deal of very interesting discussion from the delegates regarding how to make North Carolina Drainage Bonds more salable and in greater demand. Many of the suggestions made by Mr. Thompson were recommended by the Association and later embodied in its resolutions. The delegates taking part in this discussion were Messrs. E. A. Cope, Columbus, O.; Lawrence Brett, Wilson, N. C.; B. F. Keith, Wilmington; J. H. Pratt, Chapel Hill, and F. F. Wetmore, of Lumberton.

The last address of the afternoon session was by Mr. Lawrence Brett, President of the Brett Engineering and Contracting Company, who spoke on the subject, "Suggested Changes in the North Carolina Drainage Law."

Suggested Changes in North Carolina Drainage Law.

BY MR. LAWRENCE BRETT.

Mr. Brett, in the course of his remarks, made several very valuable suggestions regarding amendments to the North Carolina Drainage Law, which, if passed, will make the law operate more smoothly. He suggested that the Legislature should make provision for a drainage engineer to be employed by the Geological and Economic Survey, who should have general supervision of the organization of all drainage districts and see that the districts are organized according to law, and who, with his assistants, should make the preliminary examinations of swamp and overflowed lands to determine whether or not their drainage was feasible or practical.

He also urged a uniform method of procedure in organizing drainage districts and for some coöperation between the engineers and attorneys.

He suggested that the State should have provided suitably prepared blanks, numbered successively, which should be used by the Clerk of the Court and the engineers and viewers in carrying out the organization of a district, which if it is done will simplify very greatly the investigations of those interested in the purchase of bonds as to whether or not the district has been organized according to law.

Mr. Brett also urged the commercial organizations of Eastern North Carolina to get together and work out a plan of bringing a suitable class of settlers and homeseekers into North Carolina to settle on the reclaimed swamp lands.

EVENING SESSION—Tuesday, November 26.

On Tuesday evening a smoker, given by the Raleigh Chamber of Commerce and the Merchants Association, was largely attended by the delegates of the Drainage Convention. This smoker was held in the rooms of the Chamber of Commerce and was attended by a large number of the delegates, who enjoyed the hospitality extended to them.

MORNING SESSION—Wednesday, November 27.

The morning session was opened with prayer by the Reverend W. McC. White, Pastor of the Presbyterian Church.

The first address was by Dr. D. H. Hill, President of the College of Agriculture and Mechanic Arts of North Carolina, who spoke on the "Need for Drainage Engineers."

The Need for Drainage Engineers.

BY DR. D. H. HILL, PRESIDENT N. C. COLLEGE OF AGRICULTURE AND
MECHANIC ARTS.

Nature seems always to have ready a man or class of men for each crisis in human affairs. This is true whether an iron-hearted Napoleon is needed to crush a reign of terror or whether an Iron Duke is needed to overthrow a Napoleon; it is true whether an Adam Smith comes to found a new science or a Whitney or a Hogden Holmes to perfect a new machine. When population grew too fast to depend on hand weaving, Hargreaves and Compton and their contemporaries were ready with a power loom. When errand boys could not be found numerous enough and fast enough to handle the countless messages of expanding business, Bell and Edison were waiting to supplant the messenger boy with a telephone. When news traveled too slowly for modern ideas, Clemmons and Morse stepped forward with a speedy telegraph instrument. When ships multiplied and human lives were imperiled for lack of sea communication, Marconi was the man of the hour with his wireless instrument.

This human readiness for human needs is wonderfully illustrated in modern farming. Agriculture was not on any scientific basis and for years

had made little progress; it was not even a respectable art. Then, if I may paraphrase an old couplet:

Farming, and farming's laws lay hid in night,
God said, "Let Leibig be," and much was light.

This scientific German chemist blazed the way for putting the oldest of the arts among the newest of the sciences. Then Gilbert and Law, in their Rothampstead experiments, met the needs of the hour in their world celebrated work and raised up imitators and emulators in the new and old world. Helbrigel and Wilforth added immensely to the new science by their studies of nitrogen in the legumes. Burbank and Babcock and many others contributed their modicum until one side—the productivity of land—is on its way to a scientific foundation.

Now other phases need a scientific handling and men are stepping forth to demonstrate their readiness for these new departments. The relation, the economic relations, of crops to crops, and of crops to climate, and questions of this sort, are calling for men skilled in farm management. The better marketing of standard crops is so absorbing a question that a host of economic students are specializing in this most vital branch and will soon, I hope, be ready to lead us to a better system.

With the ever increasing numbers to be fed and clothed the question of utilizing all waste lands is demanding the same serious study. Hence we are needing engineers capable of making fertile fields out of our arid lands and productive sections out of our wet lands. On the skill of these men depends in a large measure the progress of agriculture in many sections.

In our State thousands and thousands of acres have been lying unprofitable to the owner and to the community since the settling of the State. In addition, on many farms there are portions thrown out because of too much water on them, and the owners frequently look on this loss as a natural and necessary one and not as one they can easily overcome. They feel as did one of our good farmers about galled and blackberry spots on the farm. He says that until he was about grown and had traveled into good farming sections he thought that such galled, water-gashed and briar-strewn patches were as necessary a concomitant of a farm as freckles and stubbed toes were to a healthy boy.

Of course the first problem with such moisture-sogged lands is how to get rid of the excess water. Indeed, the care of water, whether it has to be preserved or whether it has to be removed, is always one of those matters which calls forth the best thought of the farmer.

Now we are proposing to drain about three million acres of land. What is necessary for this rather colossal undertaking?

First, a law under which to operate. This we have.

Second, to form companies and properly finance each project.

Third, to have competent engineers to direct and complete the work. This last of course is absolutely necessary. As both arid and drainage engineering are more or less new occupations for Americans, a comparatively small number of men have versed themselves in these forms of engineering. However, this is not at all a difficult science. Any well equipped civil engineer with a fair knowledge of hydraulics and some experience in water construction is soon ready for this work. As the new demand comes, men will be ready to meet it. The colleges are already preparing men for it. Our Agricultural and Mechanical College is fitting men for this important field, and

already ten or twelve of its graduates are busy with drainage construction. We need not fear having men soon ready if we are prepared to use them.

Now if all the land to be drained were in the hands of large syndicates, who engage competent superintendents to manage the reclaimed land, or if such land were held only by trained farmers, we should need only drainage engineers in the strict sense of that word. But as much of the land in our State is held by small owners and much of it by men who have not been specially trained, I am inclined to think that for the present, at least, it would be well to employ engineers who have had a good training also in soils. This training would make them competent to advise owners how to handle their recovered land and perhaps save much disappointment and wasted energy and money. Some of this reclaimed land may be sour, some may have subsoils of different character, and some this quality or that, and an expert in soils could be of vast assistance to men who are unskilled in handling such lands.

Again, waterways, like roads, will not keep themselves in permanent repair without skilled oversight, and the areas drained should be under the supervision of some engineer who could visit them occasionally and direct needed repairs. If this supervising engineer were also versed in farming he could be of material service in spending at least part of his time as a farm adviser.

Moreover, a drainage engineer who has some attainments in soil management could at times be of economic advantage in another way. For instance, suppose in a proposed drainage movement there is a good deal of land that does not need drainage and a good deal that does. Expert advice as to the comparative cost of improving the old land and of draining the wet lands would save many a blunder. It seems to me that no drainage project should be undertaken until this question has been carefully investigated.

Lastly, if the drainage engineer not only knows his profession, but can be a leader among the people, he is in this added quality just so much more desirable.

This is an age of scientific achievement, and only those who have mastered the sciences on which an art is based can be of most lasting service. Hence, of course, no important work should be entrusted to an incompetent man.

The next paper was by Professor William Cain, of the University of North Carolina, on the "Relation of the University to the Public Works of the State."

The Relation of the University to the Public Works of the State.

BY PROF WM. CAIN, OF THE UNIVERSITY OF NORTH CAROLINA.

It is encouraging, and in fact inspiring, to witness the rapid growth of this association and to learn of the work that has been accomplished in a brief four years. I am glad to meet with such true "progressives," who are making a thousand blades of corn grow where none grew before. This is the day for progressives, and it is the day of big things in engineering. We are building the Panama Canal, the greatest engineering work of its kind ever undertaken; we propose to construct an inland waterway from Massachusetts to Louisiana, with which the name of Mr. Small will always

be connected; and are now engaged in irrigation schemes in the Northwest, of whose magnitude Dr. Fletcher recently wrote: "Never before in human history has such a vast scheme of national betterment, with so many great features, been devised or made possible of execution." In the Old North State we are living in the day of awakened interest in good roads and drainage.

It is a good day to live in and the young man especially may consider himself fortunate in beginning life when there is so much of hope and promise in the air.

The importance of the subject of the drainage of our wet, overflowed and swamp lands is beginning to be thoroughly realized by many interested land-owners, and it has excited, too, the liveliest interest in many of the people at large, thanks to the earnest, informing, and constructive work of the members of this Association.

It goes without saying that the University is not only willing, but anxious, to aid both in the cause of good roads and drainage. As the creature of the State, it is her duty to keep in close touch with and respond to the needs of its people as far as may be practicable. In fact, by the first Constitution of the State, adopted in December, 1776, it was declared that "all useful learning shall be duly encouraged and promoted in one or more universities." In this era of awakened interest in good roads and drainage, the phrase "useful learning" bears a special significance and may be taken to include, among other things, competent engineering instruction. Of course it must be clearly understood that no new scheme, along any line whatever, can be inaugurated without the support of the Legislature, who alone can supply the "sinews of war." Alas, that our aspirations should be so circumscribed by the constant lack of "filthy lucre." Our problems in drainage are comparatively simple as compared with many of those in the Old World. Take, for example, the fens along the east of England, including an area of 1,060 square miles and lying from four to sixteen feet below the high-water mark of the German Ocean. To prevent overflow and to drain, the upland waters are conducted direct to the sea by canals and the tidal waters are fenced out by sea banks, provided here and there with sluice doors, by which they escape at ebb tide; otherwise pumping is resorted to. This vast area has all been reclaimed and is in a beautiful state of cultivation. Its charms have been characterized by Kingsley as a "beauty of the sea, of boundless expanse and freedom."

The whole of Holland is a far more striking illustration, for here the meadows are from ten to twelve feet below the water line of the canals, and as much as twenty-five feet below high tide level of the ocean, from which they are protected by huge sea walls. Now, you may recall that the Dutch not only drained Haarlem Lake (70 square miles) in 1852 and put the reclaimed area under cultivation, but they are now contemplating the drainage of that great estuary of the ocean, the Zuider Zee, at a cost of \$125,000,000, which will add one and one-half million acres of arable land to Holland.

It is estimated that we have in North Carolina one or two million acres of land that can be reclaimed by drainage, and many millions more that can be benefited by it; and yet this drainage can be effected mainly by simply cutting ditches, laying tiles and letting gravity do the rest—no pumping, no sea walls, no sluice doors—all comparatively simple work that can be done, too, at a great ultimate profit. Further, as the ditches or

canals are dug, the very earth taken out can and often should be used to make good roads alongside; hence young men who intend to go into this work should be trained not only in drainage work, but in the art of road building at the same time.

And now you would doubtless like to have some details and to know what the University is doing to impart up-to-date instruction on roads and drainage? The answer is, that in addition to our regular four-year course in civil engineering, with further graduate work optional, there is offered a three-year course, including the same work in drainage and the location and construction of roads, as in the full course. The short course is especially intended for those men who desire in the shortest time to fit themselves for engineering work especially applicable to roads and drainage. In fact, our University has emphasized the importance of the subject by establishing these two courses. It may be of interest to know likewise that our Associate Professor of Engineering, Mr. Hickerson, has had charge for the last two summers of the surveys for the Crest of the Blue Ridge Highway, which Dr. Pratt is so earnestly striving to build. Parenthetically I may remark that when this road is built it will offer to the tourist the finest scenic route east of the Rockies. It will doubtless excite even more admiration than the first good road that was built by Marshall Wade through the Scottish Highlands; which feat was immortalized by the lines:

"Oh, had you only seen those roads before they were made,
You would lift up your eyes and bless Marshall Wade."

I feel sure that a similar enthusiastic tribute will some day come to Dr. Pratt and it will not be a posthumous one.

As to instruction in drainage, in which you practical men are especially interested, Mr. Elliot has supplied us with a useful text-book and with the aid of maps and other data referring to actual drainage schemes here or elsewhere, and with our soil survey work, a good course has been laid out that should fit a young man to undertake the practice of drainage engineering after a brief apprenticeship in actual drainage operations.

It is thus seen that the University now offers two courses in civil engineering, in either of which men receive the training necessary to fit them for either road or drainage engineering. This is the answer to your request of a year ago, that a chair for instruction in drainage engineering should be established at the University, stating the opinion that recognition should be given to the growing demands for drainage engineers. The response has been prompt to the call and, in fact, it has been anticipated. The future will, I am sure, show an equally prompt response, should further development be desired.

These two papers showed very clearly the interest that the State institutions have in the drainage work that is going on in North Carolina, and that they have responded very cordially to the request of the North Carolina Drainage Association that courses be established in these institutions relating to drainage.

Hon. John H. Small, who is one of the most earnest advocates of drainage in North Carolina, and to whom the success of the drainage

work in this State is largely due, made a very pleasing address on the drainage work of the State, with suggestions as to how it could be still more widely developed.

Address of Hon. John H. Small.

Mr. President and Gentlemen:

As no subject has been assigned to me I suppose that carries with it the privilege to browse where I may, and I shall take advantage of the privilege. I have not in the proper sense made preparation for this talk today, but I do not see how any one can attend any of these meetings of this organization, which is intended to make for the betterment of the people of North Carolina, without at least having some inspiration and some temptation to give expression to such inspiration in so far as he may exemplify it. There comes to my mind today a flood of ideas, but I shall attempt to emphasize only one, the need of a higher standard of public service in North Carolina. Not a standard alone for him who holds for the time being a position of public trust and confidence, a public official, but for every citizen, literate or illiterate, wealthy or poor, no matter to what state the exigencies of life have called him, who should set for himself this high standard of duty toward his country as shall bring him to use the expression of Dr. Elliott, in one of his essays, who states that some of the greatest satisfactions of life are the happy retrospections that he left the world in the end a little better than he found it.

I shall endeavor not to wander too far in the brief time I am allowed, but shall keep as nearly as possible to the special work of the North Carolina Drainage Association. This is a movement which should appeal to every citizen who has learned this spirit of service and who has set for himself that higher standard. In it is included the betterment of the public health, and there could be no higher duty for the citizen or the State than to create conditions under which each citizen may live his life and maintain a bodily condition which will make for greater efficiency and usefulness. In so far as such a problem can be reduced to figures, the sanatoriums have endeavored to compute the commercial value of a citizen bodily fit to take up the duties of life compared to him who is rendered unfit by disease and ill health. There can be no question that in tidewater sections of North Carolina this problem has always been and is today a large factor. Many of the preventable diseases, particularly malaria and the fevers, may be eliminated by a proper and efficient system of drainage. Not only in the coastal plain, but in the Piedmont section, along the fertile river valleys, which are subject to occasional overflow, the same problem of health concerns the resident. As I understand it, speaking with some humility in the presence of road experts, no road can be constructed, whether upon the alluvial hills of the east or in the Piedmont or mountain sections, until the country or the road at least has been drained adequately. To drain the potential wealth of the State and its citizens can hardly be computed. An additional vast area of land, which is considered to be the most fertile of our lands in every section of the State, is added to the State's wealth, and it is the purpose of this organization to bring this about.

How may we, through this organization, promote the solution then of this great problem of drainage? Gentlemen, I am daily more and more impressed with this proposition: that wherever you have a movement which

requires the coöperation of citizens for its success, the success of that movement depends not upon the few men of intelligence, not upon those progressive citizens who are possessed with the civic spirit, but it depends upon the ability of that few to bring to the average citizen the same civic spirit which makes for human welfare and human service. If we had in this organization today not only those who are present but those members who have not lent their presence to the occasion of this meeting, men who yet are willing to contribute to the success of this movement, it would still lack and would be to a large extent a failure unless we had with us the sentiment of the people at large. I refer to that coöperative spirit and in that spirit lies the success not only of this movement, but of numbers of other movements which are exemplified by various organizations in our State. With coöperation we have the secret which lies at the very basis of the best civilization. In North Carolina for more than a hundred years we have emphasized individualism. Upon the stump and the platform we have impressed upon our people the life of individual liberty, of self-independence and of a jealous regard for those rights upon which the protection of their persons and property rests, but until recent years we have failed to bring to their attention in a proper way their relation to their fellows. The more any community progresses the higher plane upon which any State gets, to that extent is required in a larger degree this spirit of coöperation. We have lived here in North Carolina for a large part of our history upon the idea that upon the parents living in the home alone depended the education of the children, and out of that theory, which has many attractive features, we failed to reach hundreds of thousands of children in North Carolina who grew up to be illiterate, and to that extent failures as breadwinners and as contributors to the progress of our State. It was only through the work of those missionaries that the public school system of North Carolina has been placed upon such a basis as to make it possible for every child to obtain a public school education, and now that we have made considerable progress, we are going to continue, until in the not far distant future the percentage of illiteracy in our State shall compare favorably with that of any other State in the Union.

We have lived upon bad roads in North Carolina upon the theory that it was the duty of some indefinable person, who remained a myth, to construct and maintain the public roads, and barring a disposition to put the burden occasionally upon such a person and upon some able-bodied young man in the State, there were no results in the making of better highways. But under the inspiration of a number of progressive citizens, officials and some in private life, we have at last learned the lesson that every man who lives in a community, rural or otherwise, owes it to himself, owes it to his fellows in his community to share this inspiration and to do his part in the construction and maintenance of the highways, and just to the extent which that spirit shall grow in the various communities and counties in North Carolina, to that extent will we have better public roads.

I attended the Convention of the North Carolina Good Roads Association in Charlotte last summer, and among the most interesting talks which I heard there was one by a resident of Mecklenburg County, if not of Charlotte; I think they called him 'Squire Hilton. He gave an interesting recital of the sacrifices and the time which had been required in the getting of the roads which Mecklenburg County today enjoys, and which have for so long been the pride of the State, and I shall never forget the injunction with

which he closed his interesting remarks. He said, "When you go to your homes tell your people that if they want good roads they can have them; that if they do not want them, they will not get them," illustrating that wherever there is sufficient average of the community spirit throughout the county to leaven the whole lump of citizenship, in that county we will have as a result the construction and maintenance of better roads.

So I might illustrate this civic spirit indefinitely, but bringing it down to the immediate purpose of this organization—the drainage of swamp and overflowed lands of North Carolina—we must realize that there lies at the basis of success in this movement the coöperative spirit. We have had lands reclaimed in Eastern North Carolina, many of the farms being known to me and which are said to have been under cultivation for more than one hundred years, fertile lands, lands in areas where rainfall is not excessive, produce so abundantly as to compare favorably with the most fertile land in the United States or any other country; yet during the whole period since these lands have been reclaimed and under cultivation, some time from three to four years, the report has been that the crops have been drowned out, and once every two or three years they have a bountiful crop. The continuance of that condition has not been due, except perhaps in a small degree, to a lack of intelligence in farming or the indolence of the land owners, but it has lain in the basic fact that it was not only impractical but impossible for the individual land owner, alone and unaided, to drain his land. He could not do so except by coöperation with the contiguous land owners through the formation of the drainage districts, and because he had not learned how to coöperate with his neighbor, to join hands as it were, and because he had not imbibed this spirit, these lands have until this time, or many of them, remained undrained, and until that is exemplified will continue to remain undrained, and will be to that extent unprofitable to the owner and to the State. We may apply this to all of those movements which make for the betterment of our country, but which are not possible of achievement by the individual alone, and whose success can only come about through the coöperation of man with man.

How may we elevate this standard of public service? How may we create in the citizen, who for the time being occupies a public place and office, that spirit? Whether that office be justice of the peace, or constable, or sheriff, or member of the Legislature, or of Congress, or Governor? How may we inculcate into their minds this feeling of obligation which they ought to acknowledge in a life's service? Gentlemen, about the most idle thing in which humanity can engage is mere speech that is not backed by good intentions, and by the will and power to exemplify them and to put them into action. We must create a higher public standard so that every official in North Carolina, high or low, shall feel that it is incumbent upon him not only to observe the law if he occupies an executive position, not only to see that the laws are executed, not only to see to it that, in so far as he can, the personal and property rights of citizens are preserved, but that by the spirit of initiative he may be enabled to enter actively as a participant into all the movements that make for the betterment of the people and the State; and yet even in the creation of the higher standard for public officials there lies behind it the same problem of creating in the mind of the average citizen of the State this same spirit of coöperative service. Upon an average it may be said, "Like people, like official." Wherever you find an official is indolent, who is a person whose highest aspiration is to promote his own

advancement to office, we find that the standard he follows has been set by his constituents. So that after all we need to go back to the home, the farm, the workshop and the office, and each of us as missionaries in this good cause penetrate all portions of North Carolina and preach the doctrine of coöperation to all our people. I may particularize as to some ways we may do that. One method is through our universities and colleges and public schools. I was delighted this morning to have the privilege of hearing the addresses by Dr. Hill and Professor Cain, representatives of the A. and M. College and of the University of our State, from whose remarks it is evident that they have responded to the request of this organization representing the necessity to the drainage work of introducing into their curriculums courses in which young men may be trained as drainage engineers. Gentlemen, may I state this proposition and emphasize it? A college that does not prepare young men for life is a misfit. The average young man who goes to college goes for his training for life, and after he leaves it, enters upon his life's vocation. Hitherto we have emphasized too greatly the professions, but only a few enter these. Most of the young men go to the farm, or they enter upon the mechanical trades, or mercantile, or various other vocations, and unless the colleges in the training of these young men have to a large extent inculcated character into them and made them more fit for success in their particular vocations, those colleges have to that extent failed in their duty to the young men placed under their care. I had the pleasure last summer of accompanying a party of agricultural workers in a series of meetings held in my district, and among the lecturers was Prof. M. H. Stacy, of the University of North Carolina, professor of engineering, I believe. His subject was "Public Roads," and I took occasion wherever he went, in the fourteen speeches which he made, to call the attention of the people to the fact that the University was *their* university, and that here was one of its professors come to them face to face, talking about matters which concerned them and their welfare. I hope to see an increase in our colleges in that spirit so that the teachers in our A. and M. College and our University, and our denominational schools, will spend a part of their vacations going into different sections of North Carolina meeting the people face to face as representatives of their colleges and talking to them about the various problems in which their welfare is involved. This should apply not only to the colleges, but to the public schools. What a fine idea it was requiring the elements of agriculture to be taught in the public schools; and for the little child in the public school, what an advantage to them, under the inspiration of a good teacher, to have implanted in his mind some of the elementary things about the soils and plant life, and some of the elementary things that the teacher can give him about public roads.

Preaching is not always attractive, and I am afraid I have done too much of it. While I have another idea or so to present I must hasten along for fear of taxing your patience too much. The development of these resources of North Carolina depends to a great extent upon labor for their successful realization, and for that reason I consider the need for a desirable class of immigrants one of the great necessities which we now have to face. I was talking to one of the citizens from the First District not long ago about that question and we soon reached the conclusion of the vital necessity of immigration for the increased population of North Carolina. You may successfully drain these farm lands, but there must be laborers to cultivate them, there must be settlers to purchase and operate them. Increase in industrial

activity to any great extent in the State at once automatically increases the demand for labor. I think many of our people in various parts of the State have a false idea of this question of immigration into our State. As one of its citizens, interested in its welfare and unwilling to espouse any doctrine which would militate against its true progress, I do say that desirable immigrants are one of the great necessities of the State today. We need the man who is willing to labor and we will give him employment. Unless I am mistaken in the signs of the times, this condition constitutes a serious handicap to our industrial progress in all lines.

Gentlemen, in conclusion and with thanks for this additional opportunity to appear before this Association, may I again, in my humble way, emphasize the necessity of inculcating both in ourselves and in our fellows a higher standard of public service for the upbuilding of our community and of our State, and for the furtherance of all those movements which make for human betterment?

The next address at the morning session was by Mr. B. E. Rice, Land and Industrial Agent of the Norfolk Southern Railway, who made a most interesting address on the subject, "Drainage as a Freight Maker."

Drainage as a Freight Maker.

BY MR. B. E. RICE.

Mr. Rice showed very conclusively why the Norfolk Southern Railway was interested in the drainage of the swamp lands of Eastern North Carolina, which is traversed principally by their railroad. The Norfolk Southern Railroad traverses thirty-six eastern counties, in twenty of which drainage is applicable. Of the 3,000,000 acres of black soil swamp lands, less than ten per cent of these are now under cultivation. Every acre that is brought under cultivation means additional freight to be handled by the railroad, and as these reclaimed swamp lands consist of some of the richest land in the State, the yield per acre will be considerably above the average. Mr. Rice illustrated the value of these swamp lands by giving some analyses of the lands of several test farms.

Iredell Farm:

Acid .....	.08
Potash .....	.32
Nitrogen .....	.07

Edgecombe Farm:

Acid .....	.07
Potash .....	.20
Nitrogen .....	.05

Wenona Farm (swamp land):

Acid .....	.11
Potash .....	.35
Nitrogen .....	.66



Corn Growing on Reclaimed Land. Beaufort County, N. C.

One acre of this land, when brought under cultivation, will yield fifty to sixty bushels of corn, one to two bales of cotton, or two to three tons of hay. If the corn raised on an acre was to be handled by the railroad for a distance of one hundred miles, this would be a revenue of about four dollars to the railroad on a fifty bushel crop. For a sixty bushel crop the revenue would be five dollars. If the crop raised is cotton, an acre would derive a revenue for the railroad varying from a dollar and thirty cents to two dollars and sixty cents for a one hundred mile haul, according to whether the crop raised is one or two bales of cotton to the acre. If the crop raised was hay a two-ton crop would make a revenue of six dollars for a one hundred mile haul. If the crop raised was potatoes and sixty barrels were raised and shipped, this would make a revenue of twelve dollars to the railroad if shipped out of the State. See Plate VI.

The Canadian Pacific Railroad estimates that every acre brought under good cultivation along its lines becomes a freight earner equal to four dollars per year. The reclaimed swamp lands of North Carolina ought to earn fully as much for the railroads that will haul the crops raised. Mr. Rice also pointed out that the railroad would necessarily secure a double haul, one due to the crops shipped out and the other to the purchases made by the grower and the supplies that have to be brought in. After pointing out how the reclaimed swamp lands would make additional freight for the railroads, Mr. Rice also pointed out the value of the drained acres to the people of the State, stating that the sales value of the crop will add to the cash circulation of the community and create new and additional lines of business.

An increase of population is sure to follow increase of acreage cultivated; a proportionate addition to agricultural production will be the result and all lines of business will prosper accordingly.

Public revenues from added taxable values will show a large increase.

Drainage and Agriculture.

BY HON. WILLIAM A. GRAHAM.

The last paper read at the morning session was by Hon. William A. Graham, Commissioner of Agriculture, whose subject was "Drainage and Agriculture."

In his address Major Graham discussed the various forms of drainage and their relation to the raising of crops. At the outset he made two general statements: First, that the plant food must be largely in the form of a liquid or in solution; second, that water must be kept under ground. He explained the method of tile drainage, which is being inaugurated in many parts of North Carolina at the present time,

and in this connection stated that in putting in tile drainage it was absolutely necessary that we know how much water we have got to carry off and be sure that we have made satisfactory provision to take care of it in the size of our tile. He also called attention to the fact that a great deal of tile that had been used for draining farm lands had not proved successful and in many instances this could be traced to the fact that it was not properly laid. He recommended that after the ditches had been cut into which the pipe is to be laid, that they be left open some time after the pipe had been laid in order that an opportunity might be given to see if the tile will do the work expected of it.

In speaking of the reclamation of the overflowed lands of the Piedmont section, Major Graham stated that in his opinion the dredges were removed too soon after the ditches were dug and that there was need of dredging for a year or more after the main canals were dug, inasmuch as the small streams coming into the large ditch bring down, during the first and second floods, a great deal of the sediment which is deposited in the larger ditch, this representing the accumulation of sediment that has never been removed since the ditch was cut. After these first floods, which get out the accumulation, the dredges can be removed.

Major Graham also called attention to the provision that was made by the act passed by the General Assembly of 1911 that the North Carolina Department of Agriculture advance a sum equal to \$15,000, which was to be used as loans to the various drainage districts for paying the costs of the reports on these districts, the sum advanced to be returned to the Department of Agriculture as soon as the bonds of the district making the loan were sold. Major Graham stated that, with a few exceptions, none of the loans which had been advanced, amounting to nearly \$12,000, had been paid back. He stated that he had no authority for collecting and that the Attorney-General could not give him any satisfaction, and that some measures should be taken to rectify this so that the districts would be compelled to pay back the money loaned, and that it should be the duty of some State official to see that such moneys are paid back.

AFTERNOON SESSION—Wednesday, November 27.

The first half of the afternoon session was devoted to two illustrated lectures, one on the "Use of Dynamite in Connection With Drainage," by Mr. J. H. Squires, and the other by Mr. L. W. Mengell, of the United States Office of Drainage Investigation, on the subject, "Complete Drainage."

These lectures were very instructive and brought up considerable comment and discussion as to the drainage work. Mr. Squires in his

lecture showed a great many ditches that had been constructed by means of dynamite and discussed the size of ditches that could be constructed advantageously in this way.

Mr. Mengell in treating his subject, "Complete Drainage," called particular attention to the need of the upkeep of ditches after they have been constructed.

The balance of the afternoon was devoted to a business session and the reports of committees.

The report of the Committee on Resolutions was made by the Chairman, Mr. Lawrence Brett, as follows:

Report of the Committee on Resolutions.

The North Carolina Drainage Association in this, its fifth annual convention, has much to be proud of. The Association organized in the city of New Bern, in 1908, has made of drainage a State-wide issue. It has brought to the attention of the North Carolina farmer the benefit to be derived from coöperation and has secured for him a law under which he can successfully drain his land, no matter how wet.

The reports from the various drainage districts show that drainage work is now under way, not only in eastern North Carolina, but in several counties in the Piedmont section. This year various drainage districts will reclaim nearly one-quarter million acres of swamp and overflowed land. There are in process of organization drainage districts with an area fully as large, and an interest in drainage work has been started that will soon bring about the reclamation of a large part of our swamp land.

The Association may congratulate itself on the fact that its work has been a decided success. It has worked under difficulties and still has many things to do to bring about the results which we can now expect. We have proved that our swamp lands can be drained. We know how to drain them. Our educational campaigns have borne fruit. There is a growing knowledge in agricultural communities of the advantage to be derived from scientific drainage.

WHEREAS, The drainage problem is one in which the public welfare is concerned, as it is closely identified with the public health and the building of good roads and as it will directly, when solved, add hundreds of millions of dollars to the wealth of the State, we again invite the hearty coöperation of the people of North Carolina in this great movement.

Resolved, That we urge the General Assembly to enact appropriate legislation for the protection of our drained timbered swamps from fire and from stock running at large. We commend to the careful attention of our legislators the fact that these drained swamp lands are a source of great wealth and that their protection is a matter of public welfare.

Resolved, That we commend to the General Assembly the State Geological and Economic Survey as worthy of most generous support, representing as it does most important activities which tend to build up our State.

Resolved, That we recommend that petitioners for new drainage districts, and newly elected drainage commissioners confer with the commissioners of drainage districts who have had experience. We believe that advice so obtained will annually save thousands of dollars and promote the drainage of our swamp lands.

Resolved, That we urge the General Assembly to establish under the jurisdiction of the State Geological and Economic Survey the office of State Drainage Engineer, and to appropriate a sufficient sum to provide for the employment of competent men and necessary assistants.

Resolved, That we recommend to the Association that a fund be created by subscription from drainage districts and others interested in drainage, with which to pay the expenses of the legislative committee; as we believe we can not ask more from the members of this committee than their time, and we feel that it would be unjust to them to ask their time and require them to pay their own expenses.

Resolved, That we commend to the attention of the legislative committee the following:

(1) The compensation and expenses of drainage commissioners.

(2) The compensation and expenses of attorneys, engineers and superintendents of construction employed in connection with drainage districts.

(3) The matter of uniform procedure under the State drainage law and the preparation of blank forms, which will comply with the various sections of the statute and make the investigation of legality of bond issues a more simple matter, and reduce the expense incident thereto.

(4) The supervision of bonds issued under the North Carolina drainage law by some State authority.

(5) That we urge the legislative committee to consider the advisability of recommending to the General Assembly legislation which will make it possible for the State of North Carolina to accept North Carolina drainage bonds as deposits from banks and insurance companies required to deposit funds with the State.

(6) That we urge the legislative committee to consider the matter of making the place of payment of principal and interest on North Carolina drainage bonds the office of the State Treasurer.

Resolved, That we express the thanks of this Association to the President and faculty of the State University and of the Agricultural and Mechanical College at Raleigh for the instruction which they are giving in drainage engineering. We believe that these two great educational institutions are giving proper recognition to the importance of agricultural development, and we urge them to continue the good work they have started and to make their courses along this line more complete.

Resolved, That we commend the State Department of Agriculture for establishing a test or demonstration farm in the low swamp lands in the eastern section of our State, and we wish for them every success.

Resolved, That we recommend the teaching of agriculture in the public schools.

Resolved, That this Association coöperate in any State-wide movement to encourage immigration to this State. We realize that one of the most important factors in the success of the drainage work is the bringing in of a desirable class of settlers who will live on their lands and cultivate them. We should welcome and aid the newcomer, and he will make us a good citizen and aid us in realizing the possibilities that are ours.

Resolved, That we extend our cordial thanks to the United States Department of Agriculture, to the office of Experiment Stations, and to the Bureau of Drainage Investigations, for the great aid they have given us in solving our drainage problems. To the State Geological and Economic Survey and to the Geological Board we are under great obligations for their active co-operation.

Resolved, That we continue our campaign of education and that all delegates to this convention be urged to go back to their homes and spread the knowledge of drainage and of what drainage will do throughout their communities.

Resolved, That this Association extend thanks to the Governor and other officials of the State of North Carolina for their hearty support and for the use of the hall of the House of Representatives. To the Chamber of Commerce, to the Merchants' Association, and to the citizens of Raleigh who have shown an interest, we are greatly indebted for the courtesies extended.

Resolved, That we extend thanks to the press of the city of Raleigh and to other papers in and out of this State for giving publicity to this convention and its work.

Resolved, That we extend thanks to Mr. Elliott for his splendid address, and to the officials of the Southern and the Norfolk Southern railroads for their participation in the convention.

Resolved, That this Association extend to the family of Mr. A. B. Lukens our sincere sympathy in their bereavement. Mr. Lukens' death was a great loss to the State and an especial loss to those interested in the work of reclamation of our swamp and overflowed land.

WHEREAS, The Federal Government is committed to the preparation of a topographic map of the United States, and also a soil map of the United States:

Therefore, be it resolved, That the North Carolina Drainage Association memorialize the Congress of the United States that they make sufficient additional appropriation to the topographic division of the United States Geological Survey so that it can at once make a topographic survey of the swamp lands of this country; and that a sufficient additional appropriation be made to the Bureau of Soils of the United States Department of Agriculture so that a soil survey can be made at once of these same swamp lands.

And be it further resolved, That copies of this resolution be sent to each member of the North Carolina Congressional delegation.

(Signed)

LAWRENCE BRETT, *Chmn.*

O. L. CLARK.

J. B. SELLERS.

B. F. KEITH.

J. S. SQUIRES.

H. C. HOOSIER.

J. J. WOODLEY.

W. C. MANLEY.

The report of the committee was accepted and the resolutions were unanimously adopted by the Convention, as introduced.

The Committee on Nominations and the Next Meeting Place made their report, as follows:

Report of Committee on Nominations and Next Meeting Place.

We recommend Charlotte as the place to hold the next convention, the date being left with the President. We suggest an earlier date than the middle of November.

We recommend the following for officers of the Association:

President—Joseph Hyde Pratt, Chapel Hill.

Secretary—George R. Boyd, Wilson.

Treasurer—Joseph Hyde Pratt, Chapel Hill.

Vice-Presidents—One from each of the counties interested in drainage.

Anson—E. A. Barrett, Polkton.

Beaufort—P. H. Johnson.

Bertie—Francis D. Winston, Windsor.

Bladen—O. L. Clark, Clarkton.

Brunswick—Jackson Johnson, Town Creek.

Camden—W. G. Ferebee, Gregory.

Chowan—W. S. Privott, Edenton.

Columbus—Joseph A. Brown, Chadbourn.

Cumberland—H. S. Weims.

Currituck—R. O. Bagley, Moyock.

Duplin—G. M. Houston, Chinquapin.

Edgecombe—B. F. Shelton, Speed.

Forsyth—L. C. Lineback, Winston-Salem.

Gaston—T. L. Ware, Mt. Holly.

Gates—A. P. Godwin, Gatesville.

Greene—D. M. Patrick, Snow Hill.

Guilford—M. W. Thompson, Greensboro.

Halifax—John L. Patterson, Halifax.

Harnett—A. J. Dunn.

Hertford—R. C. Bridger, Winton.

Iredell—C. V. Henkel, Statesville.

Jones—J. H. Bell, Pollocksville.

Lincoln—W. A. Graham, Lincolnton.

Mecklenburg—W. S. Pharr, Charlotte.

New Hanover—B. F. Keith, Wilmington.

Onslow—E. M. Koonce, Jacksonville.

Pamlico—G. T. Farnell, Bayboro.

Pasquotank—Dr. L. S. Blades, Elizabeth City.

Pender—M. F. H. Gouverneur, Wilmington.

Perquimans—E. E. Everett, Hertford.

Pitt—Alston Grimes, Grimesland.

Robeson—J. B. Sellers, Maxton.

Rockingham—R. P. Richardson, Reidsville.

Rowan—John G. Heilig, Salisbury.

Sampson—V. T. Baggett, Salemburg.

Tyrrell—John Pinner, East Lake.

Washington—J. J. Woodley, Creswell.

For any other counties interested in drainage the President is authorized to appoint a Vice-President.

This report of the committee was accepted and upon motion duly seconded the Secretary was instructed to cast a ballot for the officials as recommended by the committee. These were declared unanimously elected.

Charlotte was unanimously selected as the next meeting place for the Convention.

The Convention then adjourned *sine die* at 4:30 p. m.

Counties Represented at Convention.

The following counties were represented at the convention: Beaufort, Craven, Cumberland, Currituck, Dare, Durham, Forsyth, Guilford, Harnett, Iredell, Lincoln, Martin, Mecklenburg, McDowell, Orange, Pitt, Robeson, Rowan, Surry, Vance, Wake, Washington, Wayne, and Wilson.

Legislative Committee for 1913.*

Lawrence Brett, Wilson, Wilson County, N. C.
 O. L. Clark, Clarkton, Bladen County, N. C.
 J. Lee Crowell, Concord, Cabarrus County, N. C.
 A. W. Graham, Raleigh, Wake County, N. C.
 P. H. Johnson, Pantego, Beaufort County, N. C.
 W. S. Pharr, Charlotte, Mecklenburg County, N. C.
 John H. Small, Washington, Beaufort County, N. C.
 M. W. Thompson, Greensboro, Guilford County, N. C.

List of Registered Delegates to the Annual Convention of the North Carolina Drainage Association, held at Raleigh, November 26-27.

Addicks, John, 3d.....	Box 388, Spartanburg, S. C.
Allen, W. K.....	Wilmington, N. C.
Bagley, R. O.....	Moyock, N. C.
Beard, W. G.....	Flea Hill District, Fayetteville, N. C.
Bost, W. Thomas.....	Raleigh, N. C.
Boyd, George R.....	Wilson, N. C.
Brett, Lawrence	Wilson, N. C.
Buick, Royal C.....	Wilmington, N. C.
Cain, William	Chapel Hill, N. C.
Cameron, B.	Staggville, N. C.
Carr, Elias	Raleigh, N. C.
Cope, E. A.....	Columbus, Ohio.
Crowder, W. G.....	Cary, N. C.
Eagle, R. R.....	New Bern, N. C.
Elliott, C. G.....	2122 F Street, Washington, D. C.
Gouverneur, M. F. H.....	Wilmington, N. C.
Graham, W. A.....	Raleigh, N. C.
Graham, W. A., Jr.....	Raleigh, N. C.
Griffin, W. J.....	Manteo, N. C.
Grimes, J. Bryan.....	Raleigh, N. C.
Haynes, C. H.....	Mt. Airy, N. C.
Heilig, J. G.....	Salisbury, N. C.
Hill, D. H.....	Raleigh, N. C.
Hodges, C. W.....	Greensboro, N. C.
Holland, William M.....	Norfolk, Va.
Hosier, H. C.....	Moyock, N. C.
Hudson, C. R.....	Raleigh, N. C.
Huske, B. R.....	Fayetteville, N. C.
Johnson, P. H.....	Pantego, N. C.
Jones, R. H.....	Raleigh, N. C.
Justice, E. J.....	Greensboro, N. C.

*This committee appointed by the president.

Keith, B. F.....	Wilmington, N. C.
Kilgore, B. W.....	Raleigh, N. C.
Lay, G. W.....	Raleigh, N. C.
Lee, E.	Dunn, N. C.
Lineback, R. C.....	Winston-Salem, N. C.
McDowell, F. N.....	Raleigh, N. C.
McNair, R.	Maxton, N. C.
McNeill, D. B.....	Lumberton, N. C.
McNider, G. N.	Raleigh, N. C.
Manning, W. C.....	Williamston, N. C.
March, George M.....	Wilson, N. C.
Mengel, O. W.....	care John L. Roper Lumber Company, Norfolk, Va.
Miller, C. M.....	Salisbury, N. C.
Miller, E. J.....	Mt. Airy, N. C.
Mills, John A.....	Raleigh, N. C.
Moore, Mart P.....	Statesville, N. C.
Moseley, L.	Greensboro, N. C.
Newell, F. B.....	Warrenton, N. C.
Old, W. W., Jr.....	Norfolk, Va.
Pharr, W. S.....	Charlotte, N. C.
Pless, J. W.....	Marion, N. C.
Pratt, Joseph Hyde.....	Chapel Hill, N. C.
Rice, B. E.....	care Norfolk Southern Railway, Norfolk, Va.
Richards, M. V.....	care Southern Railway, Washington, D. C.
Sellers, G. B.....	Maxton, N. C.
Sellers, J. B.....	Maxton, N. C.
Sherman, Franklin, Jr.....	Raleigh, N. C.
Small, John H.....	Washington, N. C.
Smith, C. J.....	Dunn, N. C.
Smith, D. J.....	Fayetteville, N. C.
Squires, J. H.....	Wilmington, Del.
Squires, J. S.....	Mecklenburg, N. C.
Stanback, J. F.....	Raleigh, N. C.
Thompson, M. W.....	Eastern Carolina Dredging Co., Greensboro, N. C.
Wetmore, F. F.....	Lumberton, N. C.
Williams, C. B.....	Raleigh, N. C.
Willis, J. H.....	Washington, D. C.
Wood, J. M.....	Goldsboro, N. C.
Woodley, J. J.....	Creswell, N. C.
Woodley, S. W.....	Box 54, R. F. D. 2, Creswell, N. C.
Worthen, E. L.....	Raleigh, N. C.
Yarnell, D. N.....	Raleigh, N. C.
Young, E. F.....	Dunn, N. C.
Young, J. J.....	Henderson, N. C.

SUPREME COURT DECISIONS REGARDING DRAINAGE.

Two decisions have recently been rendered by the North Carolina Supreme Court which will be of interest to all those who are connected with drainage work in North Carolina. One of these relates to an act which was recommended by the North Carolina Drainage Association and passed by the General Assembly of 1911. This act reads as follows:

AN ACT TO EXEMPT THE NORTH CAROLINA DRAINAGE BONDS FROM TAXATION FOR A CERTAIN NUMBER OF YEARS.

The General ssembly of North Carolina do enact:

SECTION 1. That the bonds and coupons issued under and by authority of section thirty-four of chapter four hundred and forty-two of the Public Laws of one thousand nine hundred and nine shall during the years one thousand nine hundred and eleven to one thousand nine hundred and twenty-five, inclusive, be exempt from all county or municipal taxation or assessment, direct or indirect, general or special, whether imposed for purposes of general revenue or otherwise, and the interest thereon shall not be subject to taxation as for income, nor shall said bonds and coupons be subject to taxation when constituting a part of the surplus of any bank, trust company, or other corporation, but when constituting a part of such surplus shall be deducted from the total assets in order to ascertain the taxable value of such shares.

SEC. 2. This act shall be in force from and after its ratification.

Ratified this the 8th day of March, A. D. 1911.

The bonds of Muddy Creek Drainage District of Duplin County were bid in by C. A. Webb & Co., of Asheville, and then a test case made as to whether these bonds were exempted from county and municipal taxation. The Superior Court held that the bonds were not exempted, and the case was appealed and a decision rendered by the Supreme Court at the August term, 1911. The decision was rendered by Justice Clark and the judgment of the lower court was affirmed. This decision is given below:

SUPREME COURT OF NORTH CAROLINA—August Term, 1912.

No. 173—Duplin.

DRAINAGE COMMISSIONERS *v.* C. A. WEBB & Co.

Kerr & Gavin for plaintiff.

C. A. Webb and T. H. Calvert for defendants.

CLARK, C. J. The only question presented is whether the Legislature had the power by chapter 177, Public Laws 1911, to exempt from taxation bonds issued by the commissioners of the Muddy Creek Drainage District in Duplin County.

Cons., Art. V, sec. 3, declares: "Laws shall be passed, taxing by a uniform rule all moneys, credits, investments in bonds, stocks, joint stock companies, or otherwise; and also all real and personal property." And Art. VII, sec. 9,

provides: "All taxes levied by any county, city or town or township shall be uniform and ad valorem upon all property in the same, except property exempted by this Constitution."

The language of the Constitution is explicit, and the Court below properly held that the bonds of this drainage district could not be exempted from taxation. The plaintiffs contend that the Legislature has such power to exempt bonds from taxation under Art. V, sec. 5, which provides that, "Property belonging to the State or to municipal corporations shall be exempt from taxation." But its own bonds are not the property of the drainage district. Nor is such a district a municipal corporation. Certainly not within the meaning of that paragraph of the Constitution, which merely contemplates exempting property belonging to the State and to counties, cities and towns. The reason for this is that the State has the taxing power; if its bonds are not exempted, the amount of the taxes will merely be added to the rate of interest and it would be useless to collect additional taxes to pay the interest when it will save commissions thereon to deduct the taxes in advance, thus reducing the rate of interest. We do not know of any county or municipal bonds being exempted, but if it can be done the exemption would only extend to taxes of the county or municipality issuing such bonds, else to the extent of the exemption such county or municipality would be taxing the people of the rest of the State.

As stated by HOKE, J., in *Sanderlin v. Luken*, 153 N. C., 743, these drainage districts are regarded as "public quasi corporations, but partaking to some extent of the character of a governmental agency." Their assessments upon the land, it is said, quoting *Shuford v. Commissioners*, 86 N. C., 552, are "regarded as a local assessment and made with reference to special benefits derived from the property assessed from the expenditure, while taxes are public burdens imposed as burdens for the purpose of general revenue."

It is clear that the drainage commissioners have no power to levy taxes for the purposes of general revenue. They can only levy local assessments for the purposes of the public quasi corporation. Hence, such drainage districts are not municipal corporations whose property or whose bonds can be exempted from taxation. To exempt either is equivalent to taxing all other property for their benefit. In *Loan Asso. v. Commissioners*, 115 N. C., 413, BURWELL, J., says: "The General Assembly may exempt cemeteries and property held for educational, scientific, literary, charitable or religious purposes, and also the personal property of the taxpayer to a value not exceeding three hundred dollars. Cons., Art. V, sec. 5. It has no power to make any other exemptions. It is impliedly forbidden to do so." To the same effect, *R. R. v. Allsbrook*, 110 N. C., 137; *Pullen v. Corporation Commission*, 152 N. C., 548.

In view of the plain provisions of our Constitution restricting exemptions to the above recited purposes and requiring taxation to be uniform and ad valorem upon all other property, it will be useless to discuss decisions in other States with constitutions more or less variant from our own.

The drainage districts have conferred upon them the right of eminent domain, just as a railroad company or an electric power plant has, and for the same reason, that they are quasi public corporations. But they do not come within the definition of "municipal corporations" in Cons., Art. V, sec. 5. They have no governmental taxing power for general purposes. It is true the formation of these districts is encouraged by our statutes, because they are expected to aid largely in the development of the State. But so do railroads, electric power plants and other quasi public corporations. No one can con-

tend that property or bonds of those companies can be exempted from taxation, nor can those of a drainage district. Affirmed.

ALLEN, J. (concurring). I concur in the result upon the ground that the drainage district is not a municipal corporation within the meaning of Art. V, sec. 5, of the Constitution.

Civil Action to Prevent Mattamuskeet Drainage District from Issuing Bonds.

Another decision handed down at the August term of the Superior Court in North Carolina is the case of *R. B. Caravan v. Drainage Commissioners of Mattamuskeet Drainage District*. A civil action was brought to prevent the Mattamuskeet Drainage District from issuing certain drainage bonds although the lower court and the Superior Court held that the restraining order should be removed. The decision of the Supreme court is given below:

SUPREME COURT OF NORTH CAROLINA—August Term, 1912.

No. 34—Hyde.

R. B. CARAWAN v. DRAINAGE COMMISSIONERS OF MATTAMUSKEET DRAINAGE DISTRICT.

Civil action to enjoin the issuance of certain drainage bonds by the Mattamuskeet Drainage District, heard on return to preliminary restraining order before his Honor, Henry P. Lane, Judge, holding the Court of the First Judicial District at Chambers in Elizabeth City, on the 19th day of September, 1912. There was judgment dissolving the restraining order, and plaintiffs excepted and appealed, assigning for error that, in the proposed bond issue, the individual owners of land within the district were not sufficiently protected in the matter of restricting their obligations in any event to one-fourth of the amount of the bonds, as required by law, and the proceedings and deeds under which the bond issue was to be made.

I. M. Meekins and M. H. Tillett for plaintiff.

Mann & Jones for defendant.

HOKE, J. The validity of this proposed bond issue has been expressly declared in *Carter v. Commissioners*, 156 N. C., p. 183, and many of the facts relevant to such issue will be found stated in that well considered case. The present suit is brought by one of the individual owners of land within the drainage district, the plaintiff contending, as we understand his position, that the rights of these owners are not sufficiently protected and their liability properly restricted to one-fourth of the obligation represented by this bonded indebtedness, as provided by the law and proceedings applicable to the subject. After giving the matter most careful consideration, we are all of the opinion that this apprehension is not well founded. The form of the proposed bond, made an exhibit in the record, expressly refers to the statutes under which they were issued, to wit, chap. 442, Laws 1909, and chap. 509, Laws of 1909, and all acts amendatory thereof, and also to the deed by which the Board of Education holding the interest of the State in the lands affected, have passed such interest to the Southern Land Reclamation Company, the corporate owner of a large portion of the lands, supposed to be at least three-fourths in value. These acts give clear indication that only one-fourth of the

cost may be charged against the individual landowners, and the deed in question makes reference to these acts and to the special proceedings under which the drainage district was formed, and further provides in specific terms that the grantee, the Southern Land and Reclamation Company, its successors and assigns, is to pay three-fourths of the cost of construction and maintenance of the enterprise. This special proceeding is based on the proposition that the liability of the individual owners shall only be not more than one-fourth of the costs as shown from the following excerpts from the petition: "It is understood and your petitioners join in this petition with this condition attached, that the cost of the proposed improvement to the land owners in said proposed district, other than the State Board of Education, shall not exceed one hundred thousand dollars for preliminary work of completing the drainage of said lake and district."

These references would affect the bondholder with notice of the contents of the statutes and deeds in question (*Claybrook v. Commissioners*, 114 N. C., p. 453, and authorities cited), and in addition there appears upon the face of the bond the following: "The principal and interest of this bond are payable as follows and not otherwise, to wit: Three-fourths of the principal and interest hereof are payable out of assessments levied on the lands of the Southern Land Reclamation Company, described in a deed to it from the State Board of Education of the State of North Carolina, dated January 14, 1911, and one-fourth of the principal and interest of this bond is payable out of assessments upon all the other lands in the said drainage district in the manner provided by law." In the absence of any inhibitive or qualifying provision in the Constitution or statutes affecting the question, this amounts to a contract stipulation affecting and binding upon the holder of each and every bond, that the obligation thereby incurred shall not constitute a general and pecuniary indebtedness of the district, but is payable only out of assessments as provided for by the law, and that the individual owners of the land who were originally such, and the transferees holding their title, shall never in any event be assessed for more than one-fourth of such liability. *Claybrook v. Commissioners*, *supra*; *Meyer v. City and County of San Francisco*, 150 Cal., p 131; *Morrison v. Mory*, 146 Mo., 567; *Hogan v. Commissioners' Court*, 160 Ala., 544, and notes to this case in 37 L. R. S., N. S., pp. 1072-1073; *Liebman v. San Francisco*, 24 Fed., 705; 21 Am. & E. (2d Ed.), pp. 41-65.

There is nothing in the *City of Charlotte v. Trust Company*, 159 N. C., reported in 74 S. & E., p. 1054, that in any way militates against this position. In that well-considered case, there was not only nothing to restrict payment to the assessments imposed pursuant to law, but the bonds issued by a municipality having full power to create the indebtedness, contained express stipulation that they should constitute a "general personal and direct obligation of the city," in addition to being a charge on the property of abutting owners. Our conclusion is in no way affected by reason of a subsequent clause appearing on the face of each bond, as follows: "For the prompt payment of this bond and for the prompt and faithful performance of all covenants and conditions hereof, the full faith, credit and revenues of the said district are hereby irrevocably pledged." Such provision expressed in these general terms must be construed as subordinate to and controlled by the specific stipulation confining liability of the individual owner to "one-fourth of the obligation as to each bond."

There is no error and the judgment of the lower Court is affirmed.

Affirmed.

PUBLICATIONS
OF THE
NORTH CAROLINA GEOLOGICAL AND ECONOMIC SURVEY

BULLETINS.

1. Iron Ores of North Carolina, by Henry B. C. Nitze, 1893. 8°, 239 pp., 20 pl., and map. *Out of print.*
2. Building and Ornamental Stones in North Carolina, by T. L. Watson and F. B. Laney in collaboration with George P. Merrill, 1906. 8°, 283 pp., 32 pl., 2 figs. *Postage 25 cents. Cloth-bound copy 30 cents extra.*
3. Gold Deposits in North Carolina, by Henry B. C. Nitze and George B. Hanna, 1896. 8°, 196 pp., 14 pl., and map. *Out of print.*
4. Road Material and Road Construction in North Carolina, by J. A. Holmes and William Cain, 1893. 8°, 88 pp. *Out of print.*
5. The Forests, Forest Lands and Forest Products of Eastern North Carolina, by W. W. Ashe, 1894. 8°, 128 pp., 5 pl. *Postage 5 cents.*
6. The Timber Trees of North Carolina, by Gifford Pinchot and W. W. Ashe, 1897. 8°, 227 pp., 22 pl. *Out of print.*
7. Forest Fires: Their Destructive Work, Causes, and Prevention, by W. W. Ashe, 1895. 8°, 66 pp., 1 pl. *Postage 5 cents.*
8. Water-powers in North Carolina, by George F. Swain, Joseph A. Holmes and E. W. Myers, 1899. 8°, 362 pp., 16 pl. *Postage 16 cents.*
9. Monazite and Monazite Deposits in North Carolina, by Henry B. C. Nitze, 1895. 8°, 47 pp., 5 pl. *Postage 4 cents.*
10. Gold Mining in North Carolina and other Appalachian States, by Henry B. C. Nitze and A. J. Wilkins, 1897. 8°, 164 pp., 10 pl. *Out of print.*
11. Corundum and the Basic Magnesium Rocks of Western North Carolina, by J. Volney Lewis, 1895. 8°, 107 pp., 6 pl. *Postage 4 cents.*
12. History of the Gems Found in North Carolina, by George Frederick Kunz, 1907. 8°, 60 pp., 15 pl. *Postage 8 cents. Cloth-bound copy 30 cents extra.*
13. Clay Deposits and Clay Industries in North Carolina, by Heinrich Ries, 1897. 8°, 157 pp., 12 pl. *Postage 10 cents.*
14. The Cultivation of the Diamond-back Terrapin, by R. E. Coker, 1906. 8°, 67 pp., 23 pl., 2 figs. *Out of print.*
15. Experiments in Oyster Culture in Pamlico Sound, North Carolina, by Robert E. Coker, 1907. 8°, 74 pp., 17 pl., 11 figs. *Postage 6 cents.*
16. Shade Trees for North Carolina, by W. W. Ashe, 1908. 8°, 74 pp., 10 pl., 16 figs. *Postage 6 cents.*
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23. Forest Conditions in Western North Carolina, by J. S. Holmes, 1911. 8°, 115 pp., 8 pl. *Postage 15 cents.*

ECONOMIC PAPERS.

1. The Maple Sugar Industry in Western North Carolina, by W. W. Ashe, 1897. 8°, 34 pp. *Postage 2 cents.*
2. Recent Road Legislation in North Carolina, by J. A. Holmes. *Out of print.*

3. Talc and Pyrophyllite Deposits in North Carolina, by Joseph Hyde Pratt, 1900. 8°, 29 pp., 2 maps. *Postage 2 cents.*

4. The Mining Industry in North Carolina During 1900, by Joseph Hyde Pratt, 1901. 8°, 36 pp., and map. *Postage 2 cents.*

Takes up in some detail Occurrences of Gold, Silver, Lead and Zinc, Copper, Iron, Manganese, Corundum, Granite, Mica, Talc, Pyrophyllite, Graphite, Kaolin, Gem Minerals, Monazite, Tungsten, Building Stones, and Coal, in North Carolina.

5. Road Laws of North Carolina, by J. A. Holmes. *Out of print.*

6. The Mining Industry in North Carolina During 1901, by Joseph Hyde Pratt, 1902. 8°, 102 pp. *Postage 4 cents.*

Gives a list of Minerals found in North Carolina; describes the Treatment of Sulphuret Gold Ores, giving Localities; takes up the Occurrence of Copper in the Virginina, Gold Hill, and Ore Knob districts; gives Occurrence and Uses of Corundum; a List of Garnets, describing Localities; the Occurrence, Associated Minerals, Uses and Localities of Mica; the Occurrence of North Carolina Feldspar, with Analyses; an extended description of North Carolina Gems and Gem Minerals; Occurrences of Monazite, Barytes, Ocher; describes and gives Occurrences of Graphite and Coal; describes and gives Occurrences of Building Stones, including Limestones; describes and gives Uses for the various forms of Clay; and under the head of "Other Economic Minerals" describes and gives Occurrences of Chromite, Asbestos, and Zircon.

7. Mining Industry in North Carolina During 1902, by Joseph Hyde Pratt, 1903. 8°, 27 pp. *Postage 2 cents.*

8. The Mining Industry in North Carolina During 1903, by Joseph Hyde Pratt, 1904. 8°, 74 pp. *Postage 4 cents.*

Gives descriptions of Mines worked for Gold in 1903; descriptions of Properties worked for Copper during 1903, together with assay of ore from Twin-Edwards Mine; Analyses of Limonite ore from Wilson Mine; the Occurrence of Tin; in some detail the Occurrences of Abrasives; Occurrences of Monazite and Zircon; Occurrences and Varieties of Graphite, giving Methods of Cleaning; Occurrences of Marble and other forms of Limestone; Analyses of Kaolin from Barber Creek, Jackson County, North Carolina.

9. The Mining Industry in North Carolina During 1904, by Joseph Hyde Pratt, 1905. 8°, 95 pp. *Postage 4 cents.*

Gives Mines Producing Gold and Silver during 1903 and 1904 and Sources of the Gold Produced during 1904; describes the mineral Chromite, giving Analyses of Selected Samples of Chromite from Mines in Yancey County; describes Commercial Varieties of Mica, giving the manner in which it occurs in North Carolina, Percentage of Mica in the Dikes, Methods of Mining, Associated Minerals, Localities, Uses; describes the mineral Barytes, giving Method of Cleaning and Preparing Barytes for Market; describes the use of Monazite as used in connection with the Preparation of the Bunsen Burner, and goes into the use of Zircon in connection with the Nernst Lamp, giving a List of the Principal Yttrium Minerals; describes the minerals containing Corundum Gems, Hiddenite and Other Gem Minerals, and gives New Occurrences of these Gems; describes the mineral Graphite and gives new Uses for same.

10. Oyster Culture in North Carolina, by Robert E. Coker, 1905. 8°, 39 pp. *Out of print.*

11. The Mining Industry in North Carolina During 1905, by Joseph Hyde Pratt, 1906. 8°, 95 pp. *Postage 4 cents.*

Describes the mineral Cobalt and the principal minerals that contain Cobalt; Corundum Localities; Monazite and Zircon in considerable detail, giving Analyses of Thorianite; describes Tantalum Minerals and gives description of the Tantalum Lamp; gives brief description of Peat Deposits; the manufacture of Sand-lime Brick; Operations of Concentrating Plant in Black Sand Investigations; gives Laws Relating to Mines, Coal Mines, Mining, Mineral Interest in Land, Phosphate Rock, Marl Beds.

12. Investigations Relative to the Shad Fisheries of North Carolina, by John N. Cobb, 1906. 8°, 74 pp., 8 maps. *Postage 6 cents.*

13. Report of Committee on Fisheries in North Carolina. Compiled by Joseph Hyde Pratt, 1906. 8°, 78 pp. *Out of print.*

14. The Mining Industry in North Carolina During 1906, by Joseph Hyde Pratt, 1907. 8°, 144 pp., 20 pl., and 5 figs. *Postage 10 cents.*

Under the head of "Recent Changes in Gold Mining in North Carolina," gives methods of mining describing Log Washers, Square Sets, Cyanide Plants, etc., and detailed descriptions of Gold Deposits and Mines are given; Copper Deposits of Swain County are described; Mica Deposits of Western North Carolina are described, giving Distribution and General Character, General Geology, Occurrence, Associated Minerals, Mining and Treatment of Mica, Origin, together with a description of many of the mines; Monazite is taken up in considerable detail as to Location and Occurrence, Geology, including classes of Rocks, Age, Associations, Weathering, method of Mining and Cleaning, description of Monazite in Original Matrix.

15. The Mining Industry in North Carolina During 1907, by Joseph Hyde Pratt, 1908. 8°, 176 pp., 13 pl., and 4 figs. *Postage 15 cents.*

Takes up in detail the Copper of the Gold Hill Copper District; a description of the Uses of Monazite and its Associated Minerals; descriptions of Ruby, Emerald, Beryl, Hiddenite, and Amethyst Localities; a detailed description with Analyses of the Principal Mineral Springs of North Carolina; a description of the Peat Formations in North Carolina, together with a detailed account of the Use of Peat and the Results of an Experiment Conducted by the United States Geological Survey on Peat from Elizabeth City, North Carolina.

16. Report of Convention called by Governor R. B. Glenn to Investigate the Fishing Industries in North Carolina, compiled by Joseph Hyde Pratt, State Geologist, 1908. 8°, 45 pp. *Postage 4 cents.*

17. Proceedings of Drainage Convention held at New Bern, North Carolina, September 9, 1908. Compiled by Joseph Hyde Pratt, 1908. 8°, 94 pp. *Out of print.*

18. Proceedings of Second Annual Drainage Convention held at New Bern, North Carolina, November 11 and 12, 1909, compiled by Joseph Hyde Pratt, and containing North Carolina Drainage Law, 1909. 8°, 50 pp. *Out of print.*

19. Forest Fires in North Carolina During 1909, by J. S. Holmes, Forester, 1910. 8°, 52 pp., 9 pl. *Out of print.*

20. Wood-using Industries of North Carolina, by Roger E. Simmons, under the direction of J. S. Holmes and H. S. Sackett, 1910. 8°, 74 pp., 6 pl. *Postage 7 cents.*

21. Proceedings of the Third Annual Drainage Convention, held under Auspices of the North Carolina Drainage Association; and the North Carolina Drainage Law (codified). Compiled by Joseph Hyde Pratt, 1911. 8°, 67 pp., 3 pl. *Out of print.*

22. Forest Fires in North Carolina During 1910, by J. S. Holmes, Forester, 1911. 8°, 48 pp. *Postage 3 cents.*

23. Mining Industry in North Carolina During 1908, '09, and '10, by Joseph Hyde Pratt and Miss H. M. Berry, 1911. 8°, 134 pp., 1 pl., 27 figs. *Postage 15 cents.*

Gives report on Virginina Copper District of North Carolina and Virginia, by F. B. Laney; Detailed report on Mica Deposits of North Carolina, by Douglas B. Sterrett; Detailed report on Monazite, by Douglas B. Sterrett; Reports on various Gem Minerals, by Douglas B. Sterrett; Information and Analyses concerning certain Mineral Springs; Extract from Chance Report of the Dan River and Deep River Coal Fields; Some notes on the Peat Industry, by Professor Charles A. Davis; Extract from report of Arthur Keith on the Nantahala Marble; Description of the manufacture of Sand-line Brick.

24. Fishing Industry of North Carolina, by Joseph Hyde Pratt, 1911. 8°, 44 pp. *Out of print.*

25. Proceedings of Second Annual Convention of the North Carolina Forestry Association, held at Raleigh, North Carolina, February 21, 1912. Forest Fires in North Carolina During 1911. Suggested Forestry Legislation. Compiled by J. S. Holmes, Forester, 1912. 8°, 71 pp. *Postage 5 cents.*

26. Proceedings of Fourth Annual Drainage Convention, held at Elizabeth City, North Carolina, November 15 and 16, 1911, compiled by Joseph Hyde Pratt, State Geologist, 1912. 8°, 45 pp. *Postage 3 cents.*

27. Highway Work in North Carolina, containing a Statistical Report of Road Work during 1911, by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1912. 8°, 145 pp., 11 figs. *Postage 10 cents.*

28. Culverts and Small Bridges for Country Roads in North Carolina, by C. R. Thomas and T. F. Hickerson, 1912. 8°, 56 pp., 14 figs., 20 pl. *Postage 10 cents.*

29. Report of the Fisheries Convention Held at New Bern, N. C., December 13, 1911, compiled by Joseph Hyde Pratt, State Geologist, together with a Compendium of the Stenographic Notes of the Meetings Held on the Two Trips taken by the Legislative Fish Committee Appointed by the General Assembly of 1909, and the Legislation Recommended by this Committee, 1912. 8°, 302 pp. *Postage 15 cents.*

30. Proceedings of the Annual Convention of the North Carolina Good Roads Association held at Charlotte, N. C., August 1 and 2, 1912, in Coöperation with the North Carolina Geological and Economic Survey, compiled by Joseph Hyde Pratt, State Geologist, and Miss H. M. Berry, Secretary, 1912. 8°, 109 pp. *Postage 10 cents.*

31. Proceedings of Fifth Annual Drainage Convention held at Raleigh, N. C., November 26 and 27, 1912. Compiled by Joseph Hyde Pratt, State Geologist. 8°, 56 pp., 6 pl. *Postage 4 cents.*

VOLUMES.

Vol. I. Corundum and the Basic Magnesian Rocks in Western North Carolina, by Joseph Hyde Pratt and J. Volney Lewis, 1905. 8°, 464 pp., 44 pl., 35 figs. *Postage 32 cents. Cloth-bound copy 30 cents extra.*

Vol. II. Fishes of North Carolina, by H. M. Smith, 1907. 8°, 453 pp., 21 pl., 188 figs. *Postage 30 cents.*

Vol. III. The Coastal Plain Deposits of North Carolina, by Wm. Bullock

Clark, Benjamin L. Miller, L. W. Stephenson, B. L. Johnson, and Horatio N. Parker, 1912. 8°, 509 pp., 62 pl., 21 figs. *Postage 35 cents.*

Pt. I.—The Physiography and Geology of the Coastal Plain of North Carolina, by Wm. Bullock Clark, Benjamin L. Miller, and L. W. Stephenson.

Pt. II.—The Water Resources of the Coastal Plain of North Carolina, by L. W. Stephenson and B. L. Johnson.

BIENNIAL REPORTS.

First Biennial Report, 1891-1892, J. A. Holmes, State Geologist, 1893. 8°, 111 pp., 12 pl., 2 figs. *Postage 6 cents.*

Administrative report, giving Object and Organization of the Survey; Investigations of Iron Ores, Building Stone, Geological Work in Coastal Plain Region, including supplies of drinking-waters in eastern counties, Report on Forests and Forest Products, Coal and Marble, Investigations of Diamond Drill.

Biennial Report, 1893-1894, J. A. Holmes, State Geologist, 1894. 8°, 15 pp. *Postage 1 cent.*

Administrative report.

Biennial Report, 1895-1896, J. A. Holmes, State Geologist, 1896. 8°, 17 pp. *Postage 1 cent.*

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Biennial Report, 1897-1898, J. A. Holmes, State Geologist, 1898. 8°, 28 pp. *Postage 2 cents.*

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Biennial Report, 1899-1900, J. A. Holmes, State Geologist, 1900. 8°, 20 pp. *Postage 2 cents.*

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Biennial Report, 1901-1902, J. A. Holmes, State Geologist, 1902. 8°, 15 pp. *Postage 1 cent.*

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Biennial Report, 1903-1904, J. A. Holmes, State Geologist, 1905. 8°, 32 pp. *Postage 2 cents.*

Administrative report.

Biennial Report, 1905-1906, Joseph Hyde Pratt, State Geologist, 1907. 8°, 60 pp. *Postage 3 cents.*

Administrative report; report on certain swamp lands belonging to the State, by W. W. Ashe; it also gives certain magnetic observations at North Carolina stations.

Biennial Report, 1907-1908, Joseph Hyde Pratt, State Geologist, 1908. 8°, 60 pp., 2 pl. *Postage 5 cents.*

Administrative report. Contains Report on Sand Banks along the North Carolina Coast, Jay F. Bond, Forest Assistant, United States Forest Service; certain magnetic observations at North Carolina stations; Results of an investigation Relating to Clam Cultivation, by Howard E. Enders of Purdue University.

Biennial Report, 1909-1910, Joseph Hyde Pratt, State Geologist, 1911. 8°, 152 pp. *Postage 10 cents.*

Administrative report, and contains Agreements for Co-operation in Statistical Work, and Topographical and Traverse Mapping Work with the United States Geological Survey; Forest Work with the United States Department of Agriculture (Forest Service); List of Topographic maps of North Carolina and counties partly or wholly topographically mapped; description of special Highways in North Carolina; suggested Road Legislation; list of Drainage Districts and Results of Third Annual Drainage Convention; Forestry reports relating to Connolly Tract; Buncombe County, Transylvania County State Farm, certain Watersheds, Reforestation of Cut-over and Abandoned Farm Lands, on the Woodlands of the Salem Academy and College; Recommendations for the Artificial Regeneration of Longleaf Pine at Pinehurst; Act regulating the use of and for the Protection of Meridian Monuments and Standards of Measure at the several county-seats in North Carolina; list of Magnetic Declination at the county-seats, January 1, 1910; letter of Fish Commissioner of the United States Bureau of Fisheries relating to the conditions of the North Carolina fish industries; report of the Survey for the North Carolina Fish Commission referring to dutch or pound-net fishing in Albemarle and Croatan sounds and Chowan River, by Gilbert T. Rude, of the United States Coast and Geodetic Survey; Historical Sketch of the several North Carolina Geological Surveys, with list of publications of each.

Samples of any mineral found in the State may be sent to the office of the Geological and Economic Survey for identification, and the same will be classified free of charge. It must be understood, however, that no ASSAYS, or QUANTITATIVE DETERMINATIONS, WILL BE MADE. Samples should be in a lump form if possible, and marked plainly on outside of package with name of sender, post-office address, etc.; a letter should accompany sample and *stamp* should be enclosed for reply.

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